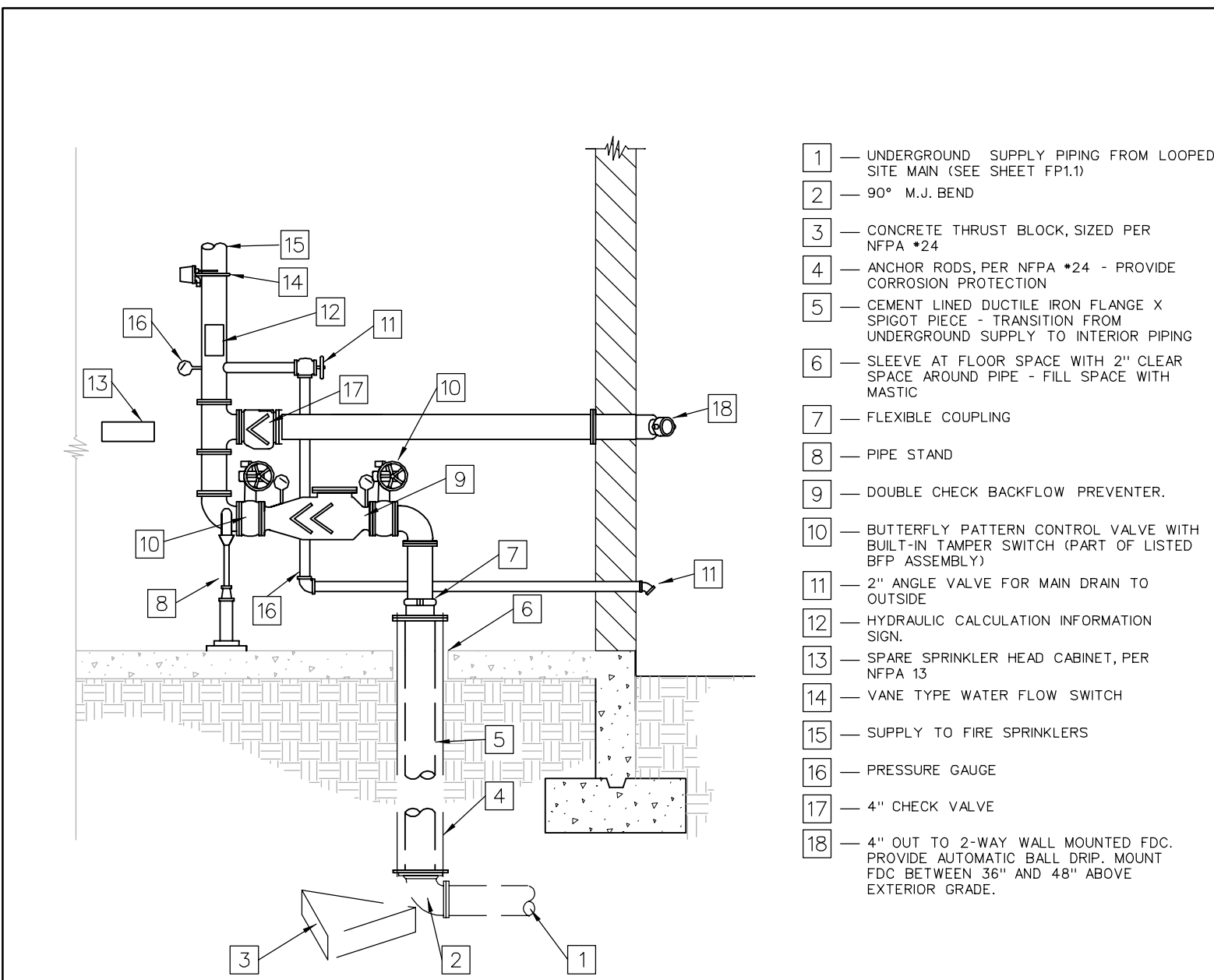


FIRE SPRINKLER DESIGN CRITERIA – LEVEL 1

1/8" = 1'-0"



ADMINISTRATION RISER DETAIL

N.T.S.

FIRE SPRINKLER SYSTEM KEY NOTES

1. FIRE SPRINKLER SYSTEM RISER. SEE DETAIL ON DRAWINGS.
2. FURNISH AND INSTALL NEW UNDERGROUND FIRE SPRINKLER SUPPLY MAIN FOR EACH BUILDING IN ACCORDANCE WITH NFPA 13, NFPA 24 AND STATE OF UTAH DFCM REQUIREMENTS. CONNECT TO EXISTING 8" LOOPED SITE MAIN (SEE SHEET FP-1.1).
3. INSTALL A SIDEWALL SPRINKLER TO PROTECT BOTTOM OF ELEVATOR SHAFT IN ACCORDANCE WITH NFPA 13 8.14.5.1. FIRE SPRINKLER AT TOP OF NON-COMBUSTIBLE ELEVATOR SHAFT MAY BE OMITTED IN ACCORDANCE WITH NFPA 13 8.14.5.5.
4. INSTALL DRY SIDEWALL SPRINKLERS TO PROTECT BELOW EXTERIOR CANOPY IN ACCORDANCE WITH NFPA 13 8.14.7. SPACING OF SPRINKLERS SHALL CONFORM TO REQUIREMENTS FOR ORDINARY HAZARD.
5. PROVIDE UL LISTED CORROSION RESISTANT SPRINKLER IN MOIST ROOM.
6. PROVIDE SPRINKLERS AT ROOF DECK AND BELOW SUSPENDED CEILING.

FIRE SPRINKLER SYSTEM GENERAL NOTES

1. PROVIDE AND INSTALL A COMPLETE FIRE SPRINKLER SYSTEM PER NFPA 13 (2002 EDITION), THE PROJECT SPECIFICATIONS AND THESE DRAWINGS TO PROVIDE FIRE PROTECTION OF EACH BUILDING. WORK SHALL BEGIN BY CONNECTING TO EXISTING LOOPED SITE MAIN AND INSTALLING NEW UNDERGROUND FIRE SPRINKLER LATERAL. OVERHEAD PIPING SHALL NOT BE CONNECTED TO UNDERGROUND PIPING UNTIL UNDERGROUND PIPING HAS BEEN FLUSHED AND TESTED IN ACCORDANCE WITH NFPA 24.
2. FIRE SPRINKLER CONTRACTOR SHALL PREPARE AND SUBMIT FIRE SPRINKLER SHOP DRAWINGS, HYDRAULIC CALCULATIONS AND EQUIPMENT DATA SHEETS TO UTAH STATE FIRE MARSHAL'S OFFICE, DFCM AND PROJECT ENGINEER.
3. FIRE SPRINKLER SYSTEMS SHALL BE DESIGNED TO SUPPLY THE DISCHARGE DENSITIES INDICATED ON THE DRAWINGS.
4. ALL MATERIALS, DEVICES AND EQUIPMENT SHALL BE U.L. LISTED OR F.M. APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. INSTALLER SHALL BE LICENSED TO INSTALL FIRE SPRINKLER SYSTEMS IN THE STATE OF UTAH.
5. ALL HORIZONTAL PIPING SHALL BE INSTALLED 2'-0" (MAINS) OR 1'-0" (BRANCH LINES) CENTERLINE BELOW ROOF DECK. WHERE CEILINGS ARE NOT PROVIDED, DEFLECTORS OF SPRINKLERS SHALL BE LOCATED WITHIN 12" OF THE ROOF DECK. ADJUST ELEVATION AS REQUIRED TO AVOID CONFLICTS WITH STEEL BEAMS.
6. PIPING:
PROVIDE STEEL PIPING CONFORMING TO ANSI/ASTM A53, ASTM A135 AND ASTM A795
2-1/2" (NOMINAL) AND LARGER PIPING MAY BE SCHEDULE 10
2" (NOMINAL) AND SMALLER PIPING SHALL SCHEDULE 40 OR APPROVED EQUAL
ALL PIPING SHALL HAVE A CRR (U.L. CORROSION RESISTANCE RATIO) EQUAL TO OR GREATER THAN 1.0.
7. FITTINGS:
PROVIDE CAST IRON FITTINGS FOR THREADED PIPE. PROVIDE RUBBER GASKETED FITTINGS FOR ROLL GROOVED SCHEDULE 10 MAINS. PROVIDE WELDED OUTLETS FOR BRANCH LINE ATTACHMENTS TO MAINS. PLAIN END FITTINGS ARE NOT ACCEPTABLE.
8. HANGERS:
1-1/4" AND SMALLER PIPING - MINIMUM ONE HANGER PER LENGTH OF PIPE AND MAXIMUM 12'-0" BETWEEN HANGERS.
1-1/2" AND LARGER PIPING - MINIMUM ONE HANGER PER LENGTH OF PIPE AND MAXIMUM 15'-0" BETWEEN HANGERS.
9. SPRINKLER SPACING:
LIGHT HAZARD: 225 SQ. FT. (MAXIMUM)
ORDINARY HAZARD: 150 SQ. FT. (MAXIMUM)
EXTRA HAZARD: 100 SQ. FT. (MAXIMUM)
WAREHOUSE: 100 SQ. FT. (MAXIMUM)
10. SEISMIC BRACING: BRACING PROVIDED FOR ALL PIPING AS REQUIRED BY NFPA *13 USING SCHEDULE 40 PIPE. RIGID COUPLINGS USED ON FEED MAINS AND CROSS MAINS. BRACING SHALL BE ATTACHED TO STRUCTURAL MEMBERS IN ACCORDANCE WITH NFPA 13.
11. PROVIDE EXTRA SPRINKLERS PER NFPA 13 FOR PROTECTION BELOW DUCTS, CONDUIT, OR SIMILAR EXPOSED OBSTRUCTIONS OVER 48" WIDE. PROVIDE EXTRA SPRINKLERS AS REQUIRED BY NFPA 13 WHERE SPRINKLER HEAD DISCHARGE IS OBSTRUCTED.
12. PROVIDE FIRE SPRINKLERS IN ACCORDANCE WITH NFPA 13 TO PROTECT ANY CONCEALED SPACES ENCLOSED WHOLLY OR PARTLY BY EXPOSED COMBUSTIBLE CONSTRUCTION.
13. WATER SUPPLY AVAILABLE FOR FIRE SPRINKLER SYSTEM ACCORDING TO WATER FLOW TEST CONDUCTED AT SITE BY PCI APRIL 14, 2006. PRESSURES REPORTED BELOW HAVE BEEN REDUCED BY 20% TO ACCOUNT FOR FUTURE DEVELOPMENT OF AREA AND MAY BE USED IN THE HYDRAULIC CALCULATIONS FOR THE FIRE SPRINKLER WITHOUT FURTHER REDUCTION:

STATIC PRESSURE: 91 PSI
RESIDUAL PRESSURE: 80 PSI
FLOW: 1,343 GPM

DESIGN DENSITY LEGEND

PATTERN	OCCUPANCY GROUP	DESIGN DENSITY (GPM/SQ FT)	DESIGN AREA (SQ FT)	HOSE ALLOWANCE (GPM)	AREAS
	LIGHT HAZARD	0.10	1,500	100	CORRIDORS, LOBBIES, OFFICE SPACES, BREAK ROOMS, RESTROOMS, CONFERENCES ROOMS, TRAINING ROOMS, ETC.
	ORDINARY HAZARD GROUP 1	0.15	1,500	250	ELECTRICAL ROOMS, COMMUNICATION ROOMS, MECHANICAL ROOMS, ETC.
	ORDINARY HAZARD GROUP 2	0.20	1,500	250	MISCELLANEOUS STORAGE, ELEVATOR EQUIPMENT AND PIT, LAB SPACE, JANITORIAL, VEHICLE PARKING, WASH & MAINTENANCE, WELDING SHOP, WOOD SHOP, CARPENTER SHOP, ELECTRICAL SHOP, PLAN ROOMS, ETC.
	EXTRA HAZARD GROUP 2	0.40	2,500	500	PAINT STORAGE, PAINT SHOP AND PAINT EQUIPMENT STORAGE
	TIRE STORAGE (6" HIGH ON PORTABLE RACK ON TREAD)	0.32	2,000	500	WAREHOUSE

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE SPRINKLER
DESIGN CRITERIA
ADMINISTRATION
BUILDING LEVEL 1
FP-2.1

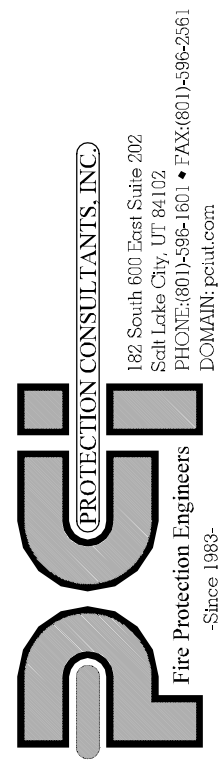
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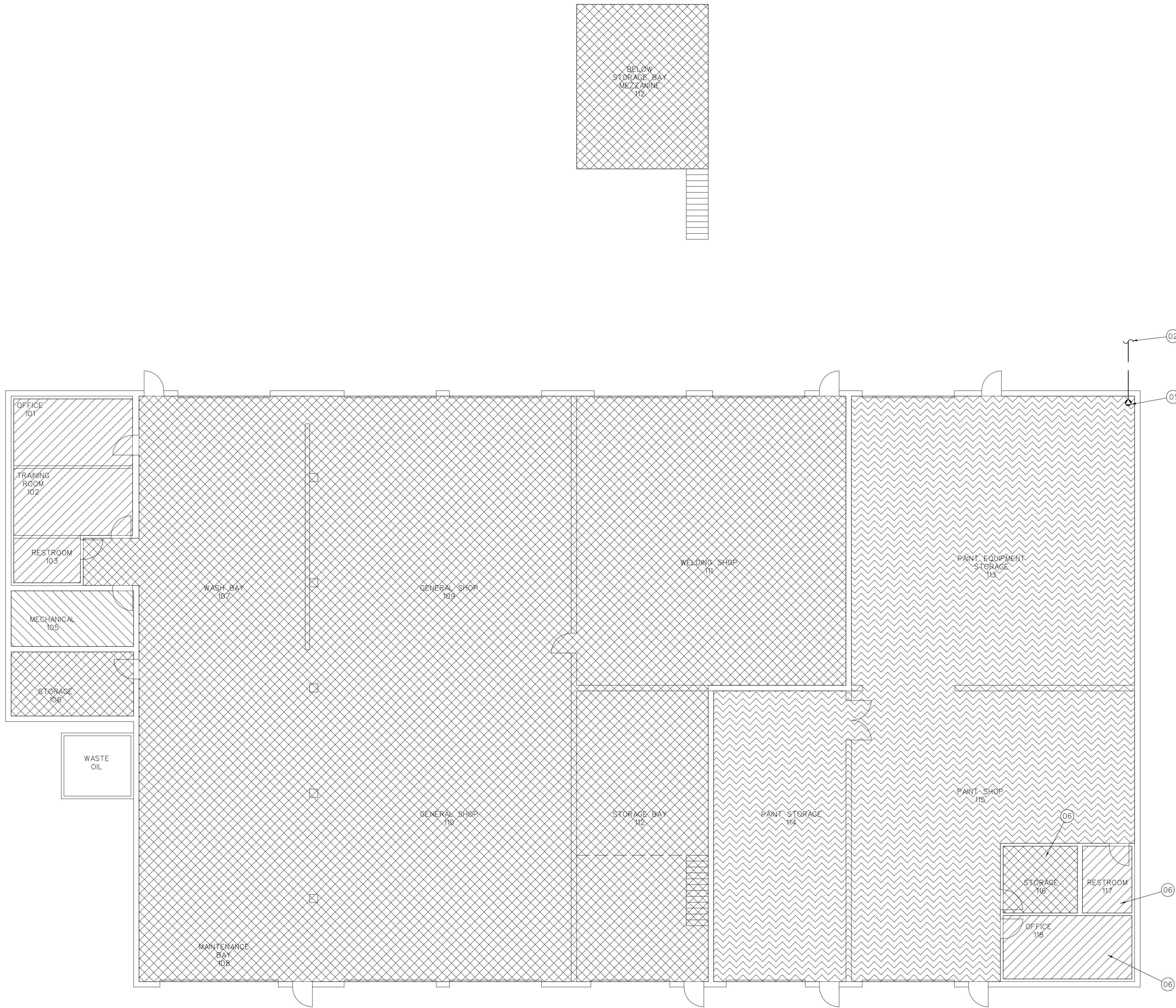
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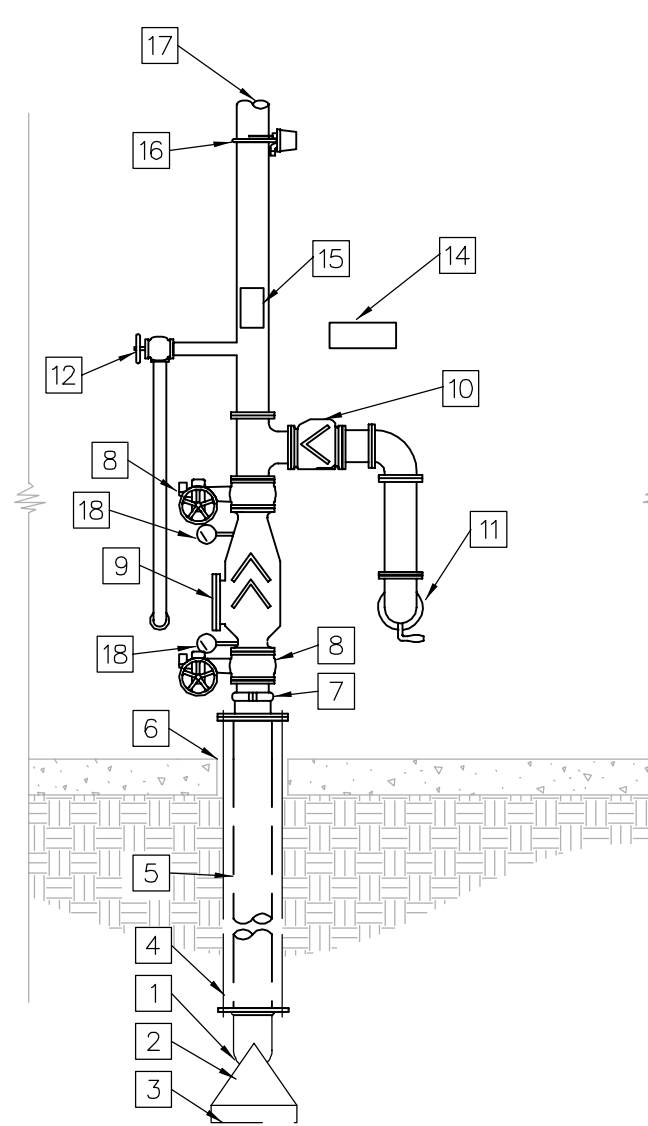
REVISIONS:





FIRE SPRINKLER DESIGN CRITERIA – HEAVY EQUIPMENT/ PAINT STG. BLDG.

1/8" = 1'-0"



HEAVY EQUIPMENT/PAINT STORAGE
RISER DETAIL
N.T.S.

FIRE SPRINKLER SYSTEM KEY NOTES

1. FIRE SPRINKLER SYSTEM RISER: SEE DETAIL ON DRAWINGS.
2. FURNISH AND INSTALL NEW UNDERGROUND FIRE SPRINKLER SUPPLY MAIN FOR EACH BUILDING IN ACCORDANCE WITH NFPA 13, NFPA 24, AND STATE OF UTAH DFCM REQUIREMENTS. CONNECT TO EXISTING 8" LOOPED SITE MAIN (SEE SHEET FP-1.1).
3. INSTALL A SIDEWALL SPRINKLER TO PROTECT BOTTOM OF ELEVATOR SHAFT IN ACCORDANCE WITH NFPA 13 8.14.5.1. FIRE SPRINKLER AT TOP OF NON-COMBUSTIBLE ELEVATOR SHAFT MAY BE OMITTED IN ACCORDANCE WITH NFPA 13 8.14.5.5.
4. INSTALL DRY SIDEWALL SPRINKLERS TO PROTECT BELOW EXTERIOR CANOPY IN ACCORDANCE WITH NFPA 13 8.14.7. SPACING OF SPRINKLERS SHALL CONFORM TO REQUIREMENTS FOR ORDINARY HAZARD.
5. PROVIDE UL LISTED CORROSION RESISTANT SPRINKLER IN MOIST ROOM.
6. PROVIDE SPRINKLERS AT ROOF DECK AND BELOW SUSPENDED CEILING.

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2" (NOMINAL) AND SMALLER PIPING SHALL SCHEDULE 40 OR APPROVED EQUAL.
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7. FITTINGS:
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8. HANGERS:
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1-1/2" AND LARGER PIPING - MINIMUM ONE HANGER PER LENGTH OF PIPE AND MAXIMUM 15'-0" BETWEEN HANGERS.
9. SPRINKLER SPACING:
LIGHT HAZARD: 225 SQ. FT. (MAXIMUM)
ORDINARY HAZARD: 130 SQ. FT. (MAXIMUM)
EXTRA HAZARD: 100 SQ. FT. (MAXIMUM)
WAREHOUSE: 100 SQ. FT. (MAXIMUM)
10. SEISMIC BRACING: BRACING PROVIDED FOR ALL PIPING AS REQUIRED BY NFPA #13 USING SCHEDULE 40 PIPE. RIGID COUPLINGS USED ON FEED MAINS AND CROSS MAINS. BRACING SHALL BE ATTACHED TO STRUCTURAL MEMBERS IN ACCORDANCE WITH NFPA 13.
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FLOW: 1,343 GPM

DESIGN DENSITY LEGEND

PATTERN	OCCUPANCY GROUP	DESIGN DENSITY (GPM/SQ FT)	DESIGN AREA (SQ FT)	HOSE ALLOWANCE (GPM)	AREAS
	LIGHT HAZARD	0.10	1,500	100	CORRIDORS, LOBBIES, OFFICE SPACES, BREAK ROOMS, RESTROOMS, CONFERENCES ROOMS, TRAINING ROOMS, ETC.
	ORDINARY HAZARD GROUP 1	0.15	1,500	250	ELECTRICAL ROOMS, COMMUNICATION ROOMS, MECHANICAL ROOMS, ETC.
	ORDINARY HAZARD GROUP 2	0.20	1,500	250	MISCELLANEOUS STORAGE, ELEVATOR EQUIPMENT AND PIT, LAB SPACE, JANITORIAL, VEHICLE PARKING, WASH & MAINTENANCE, WELDING SHOP, WOOD SHOP, CARPENTER SHOP, ELECTRICAL SHOP, PLAN ROOMS, ETC.
	EXTRA HAZARD GROUP 2	0.40	2,500	500	PAINT STORAGE, PAINT SHOP AND PAINT EQUIPMENT STORAGE
	TIRE STORAGE (6" HIGH ON PORTABLE RACK ON TREAD)	0.32	2,000	500	WAREHOUSE

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE SPRINKLER
DESIGN CRITERIA
HEAVY EQUIP./ PAINT
STORAGE BUILDING
FP-2.4

DRAWING DATE:
06/13/06

REVISION DATE:

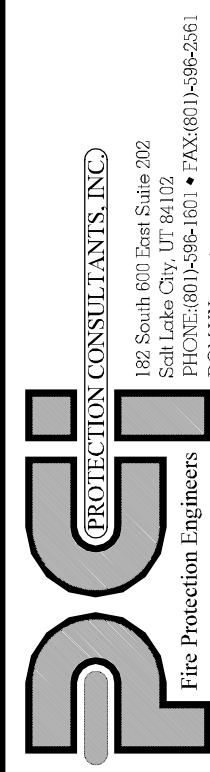
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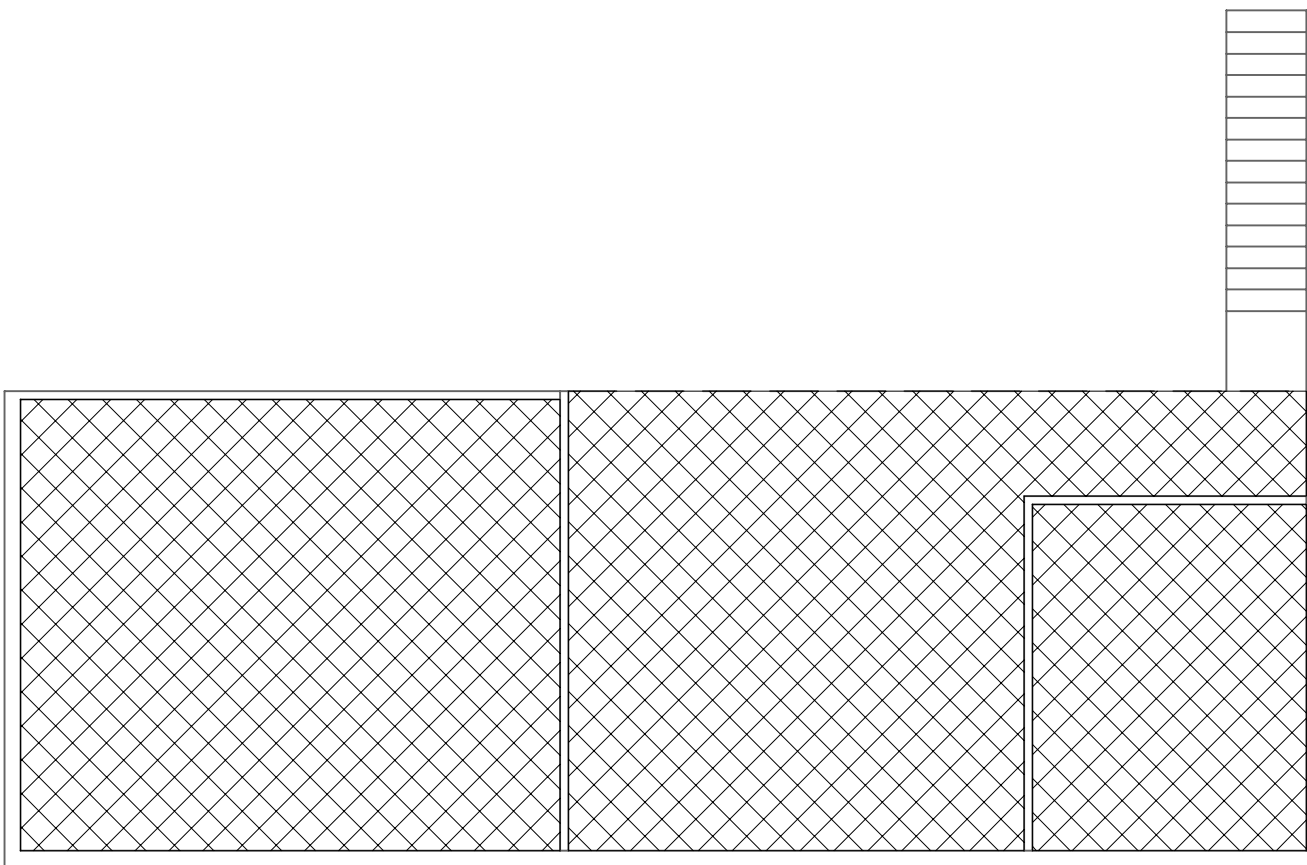
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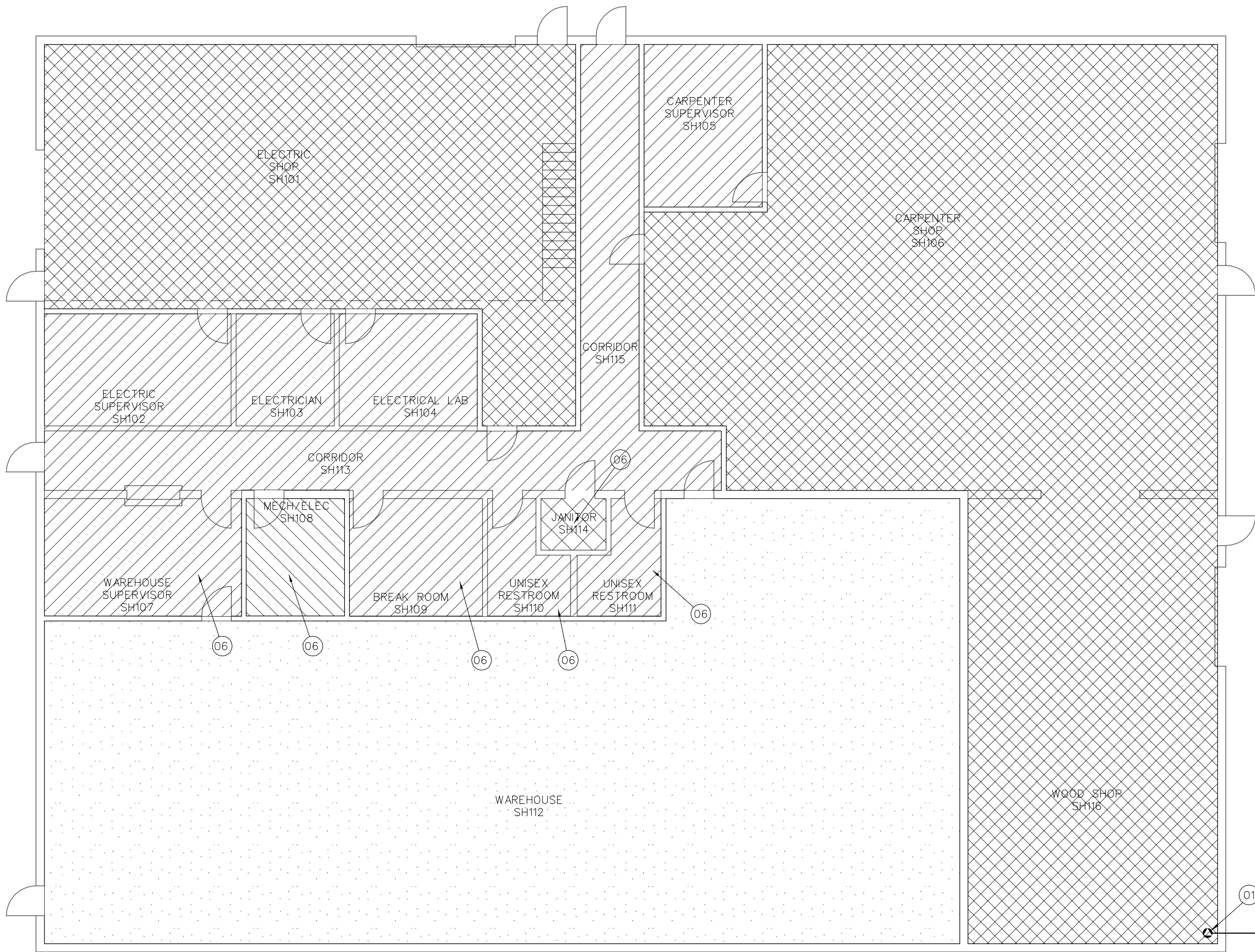
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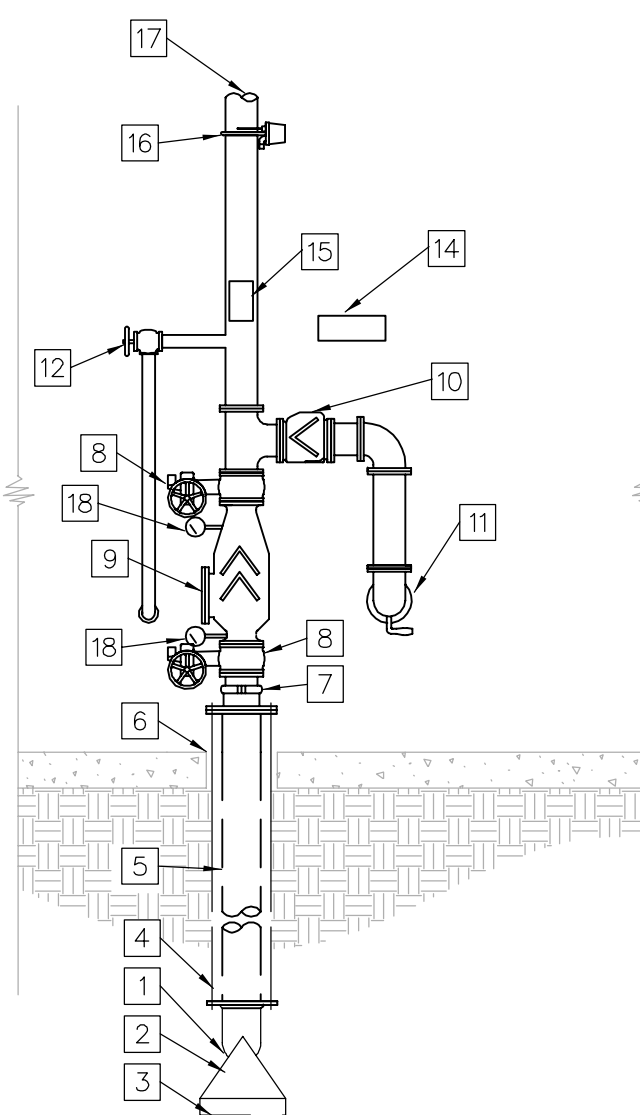
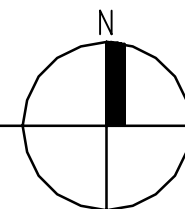


STORAGE MEZZANINE



FIRE SPRINKLER DESIGN CRITERIA – WAREHOUSE/SHOP BUILDING

1/8" = 1'-0"



- UNDERGROUND SUPPLY PIPING (SEE SHEET FP-11) FOR CONTINUATION
- 90° M.J. BEND
- CONCRETE THRUST BLOCK, SIZED PER NFPA #24
- ANCHOR RODS PER NFPA #24 - PROVIDE CORROSION PROTECTION
- CEMENT LINED DUCTILE IRON FLANGE X SPIGOT PACE - TRANSITION FROM UNDERGROUND SUPPLY TO INTERIOR PIPING
- SLEEVE AT FLOOR SPACE WITH 2" CLEAR SPACE AROUND PIPE - FILL SPACE WITH MASTIC
- FLEXIBLE COUPLING
- BUTTERFLY CONTROL VALVE WITH BUILT-IN TAMPER SWITCH AND ATTACHED LOCKING CHAIN
- DOUBLE CHECK BACK FLOW PREVENTION ASSEMBLY (VERTICAL ORIENTATION)
- SWING CHECK VALVE
- 6" OUT TO 4-WAY FLUSH MOUNT FIRE DEPT. CONNECTION. PROVIDE AUTOMATIC BALL DRIP. LOCATE F.D.C. 18" TO 48" ABOVE EXTERIOR GRADE.
- ANGLE VALVE FOR MAIN DRAIN, EXTEND DISCHARGE TO BUILDING EXTERIOR. SIZE DRAIN LINE PER NFPA 13.
- NOT USED
- SPARE SPRINKLER HEAD CABINET, PER NFPA 13
- HYDRAULIC CALCULATION INFORMATION SIGN.
- VANE TYPE WATER FLOW SWITCH
- SUPPLY TO FIRE SPRINKLERS
- PRESSURE GAUGE

WAREHOUSE RISER DETAIL

N.T.S.

FIRE SPRINKLER SYSTEM KEY NOTES

- FIRE SPRINKLER SYSTEM RISER. SEE DETAIL ON DRAWINGS.
- FURNISH AND INSTALL NEW UNDERGROUND FIRE SPRINKLER SUPPLY MAIN FOR EACH BUILDING IN ACCORDANCE WITH NFPA 13, NFPA 24, AND STATE OF UTAH DFCM REQUIREMENTS. CONNECT TO EXISTING 8" LOOPED SITE MAIN (SEE SHEET FP-1.1).
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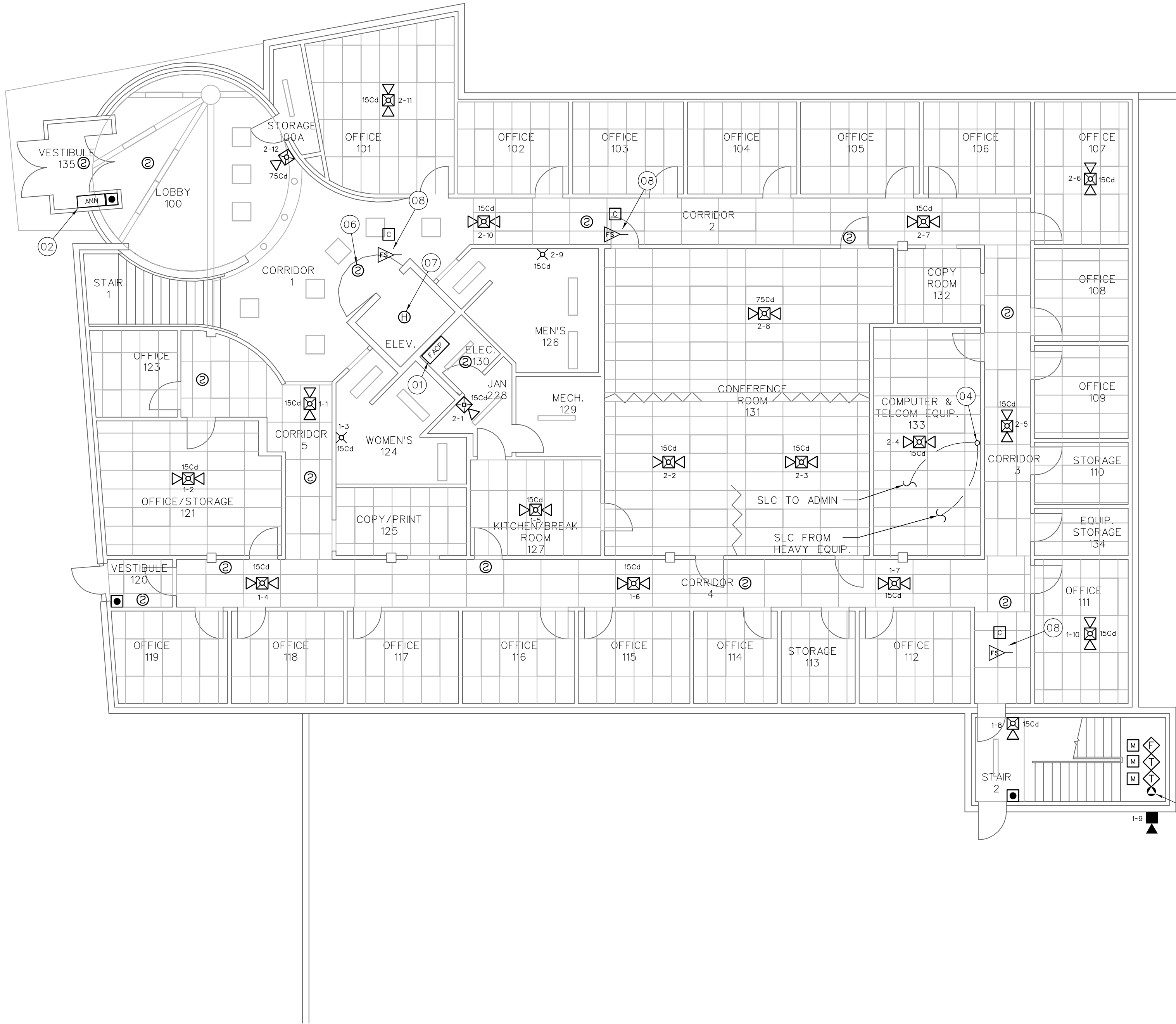
DESIGN DENSITY LEGEND

PATTERN	OCCUPANCY GROUP	DESIGN DENSITY (GPM/SQ FT)	DESIGN AREA (SQ FT)	HOSE ALLOWANCE (GPM)	AREAS
	LIGHT HAZARD	0.10	1,500	100	CORRIDORS, LOBBIES, OFFICE SPACES, BREAK ROOMS, RESTROOMS, CONFERENCES ROOMS, TRAINING ROOMS, ETC.
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UDOT REGION 3
PROVO, UTAH

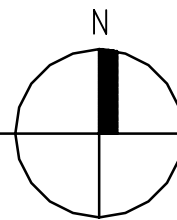
FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE SPRINKLER
DESIGN CRITERIA
WAREHOUSE/SHOP
BUILDING
FP-2.5



FIRE ALARM SYSTEM PLAN – ADMINISTRATION BUILDING LEVEL 1

1/8" = 1'-0"



FIRE ALARM SYSTEM GENERAL NOTES

- SCOPE OF WORK: WORK SHALL INCLUDE INSTALLATION OF NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING ALL CONTROL EQUIPMENT, POWER SUPPLIES, INITIATING CIRCUITS AND DEVICES, NOTIFICATION APPLIANCE CIRCUITS AND DEVICES REQUIRED TO CONSTITUTE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM THROUGHOUT BUILDING IN ACCORDANCE WITH NFPA 72, IBC, IFC THESE DRAWINGS AND PROJECT SPECIFICATIONS.
- APPLICABLE CODES/STANDARDS:
INTERNATIONAL BUILDING CODE - 2003 EDITION
INTERNATIONAL FIRE CODE - 2003 EDITION
UTAH STATE FIRE MARSHAL RULE R710-4
NFPA 70 - 2002 EDITION
NFPA 72 - 2002 EDITION
- QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL, AND DEVICES LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). MAJOR SYSTEM COMPONENTS (CONTROL PANELS, INITIATING DEVICES, ADDRESSABLE MODULES, AND RELAYS, POWER SUPPLIES, ETC.) SHALL BE FROM A STATE OF UTAH DFCM APPROVED MANUFACTURER. APPROVED MANUFACTURERS INCLUDE FIRE-LITE AND SILENT KNIGHT.
- SUBMITTALS: FIRE ALARM SYSTEM CONTRACTOR SHALL PREPARE AND SUBMIT SHOPS DRAWINGS TO UTAH STATE FIRE MARSHAL'S OFFICE, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.
- SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE REQUIREMENTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS. SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER. PROVIDE A SINGLE FACP FOR ALL 4 BUILDINGS. EXTEND SLC FROM ONE BUILDING TO THE NEXT VIA EXISTING UNDERGROUND CONDUIT (COORDINATE WITH OWNER). TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. PROVIDE CIRCUIT EXTENDERS/BOOSTERS AS REQUIRED. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION ON ALL CIRCUITS WHERE THEY ENTER OR LEAVE A BUILDING.
- OCCUPANT NOTIFICATION: NOTIFICATION CIRCUITS SHALL BE ZONED WITH ONE ZONE PER BUILDING. PROVIDE REMOTE NOTIFICATION POWER SUPPLIES IN EACH BUILDING TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONFIGURE NOTIFICATION CIRCUITS IN EACH BUILDING TO ACTIVATE ONLY UPON OPERATION OF AN INITIATING DEVICE IN THAT BUILDING.
- WIRING/CONDUIT: ALL WIRING TO BE FREE OF OPENS, SHORTS AND GROUNDS. INSTALL ALL WIRING IN MINIMUM 3/4" RIGID CONDUIT OR EMT. WIRING DROPS (5 MAX) TO SINGLE DEVICES MAY BE INSTALLED IN MINIMUM 3/4" FLEXIBLE CONDUIT. CONDUIT INSTALLATION SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF NEC (NFPA 70) AND DFCM STANDARDS. ALL CONDUIT PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND. ALL WIRING USED IN THE FIRE ALARM SYSTEM SHALL BE FIRE-RESISTANT. POWER LIMITED WITH 300V INSULATION OR EQUIVALENT AS PER NFPA 70 ARTICLE 760.
- WIRING STYLES (PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE D CIRCUITS OR 127 MODULES (PULL STATIONS, MONITOR, CONTROL, ETC.) PER LOOP. AT LEAST 19 ADDRESSES (15%) SHOULD BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS./
- SMOKE DETECTORS: PROVIDE SMOKE DETECTORS WHERE SHOWN ON PLANS IN ALL CORRIDORS, LOBBIES, ELEVATOR EQUIPMENT ROOM AND ABOVE FIRE ALARM CONTROL EQUIPMENT. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN OR 15' FROM FURTHEST WALL.
- MANUAL PULL STATIONS: INSTALL PULL STATIONS AT EACH BUILDING EXIT AS SHOWN ON PLANS. MOUNT PULL STATIONS AT 48" AFF ON RECESSED JUNCTION BOXES.
- HEAT DETECTORS: PROVIDE HEAT DETECTORS WHERE SHOWN ON PLANS IN ELEVATOR EQUIPMENT ROOM AND ELEVATOR PIT. MAXIMUM SPACING FOR HEAT DETECTORS SHALL BE 50' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL.
- ADDRESSABLE MODULES: PROVIDE ADDRESSABLE MODULES WITH EXTERNALLY VISIBLE LED TO MONITOR CONVENTIONAL DEVICES (WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, ETC.). LOCATE MONITOR MODULE ADJACENT TO FLOW OR TAMPER SWITCH IN AN ACCESSIBLE LOCATION. LABEL AS PART OF THE FIRE ALARM SYSTEM WITH THE NAME OF THE DEVICE MONITORED ON THE COVER OF THE JUNCTION BOX.
- NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT EACH BUILDING IN ACCORDANCE WITH PUBLIC MODE SIGNALLING REQUIREMENTS OF NFPA 72. VOLUME OF HORNS AND SPEAKERS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 DB ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL PUBLIC AREAS OF THE BUILDING AS WELL AS PRIVATE OFFICES AND AREAS WITH POSSIBLE OCCUPANCY BY HEARING IMPAIRED PERSONS. PROVIDE SYNCHRONIZATION OF STROBE FLASHES.
- FIRE SAFETY FUNCTIONS:
ELEVATOR RECALL: CONTROL MODULES WITH RELAY CONTACTS SHALL BE INSTALLED AND PROGRAMMED TO PROVIDE ELEVATOR RECALL AND ELEVATOR POWER SHUNT TRIP. THE CONTROL RELAY MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROL ED. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DEVICES TO BE CONTROLLED.
FIRE/SMOKE DAMPERS: PROVIDE CONTROL MODULES WITH RELAY CONTACTS TO RELEASE ALL EXISTING FIRE/SMOKE DAMPERS. INSTALL MODULE WITH 36" OF DAMPER OR POWER CIRCUIT TO DAMPER MODULE SHALL BE LISTED FOR VOLTAGE AND CURRENT REQUIRED TO OPERATE DAMPERS. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DAMPERS TO BE CONTROLLED.
- TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY UTAH STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST THREE DAYS PRIOR TO SCHEDULED TEST.

FIRE ALARM SYSTEM KEY NOTES

- FURNISH AND INSTALL NEW ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) FOR UDOT REGION 3 COMPLEX (4 BUILDINGS). INSTALL FACP IN ADMINISTRATION BUILDING AND EXTEND SIGNALING LINE CIRCUIT BETWEEN BUILDINGS USING EXISTING UNDERGROUND CONDUIT PROVIDED BY OWNER (WIRE BY CONTRACTOR). FACP SHALL BE SILENT KNIGHT S820 XL OR FIRE-LITE MS-9600 WITH DACT-UD. EXTEND PHONE LINES (PRIMARY AND SECONDARY) FROM EXISTING TELEPHONE TERMINAL BOARD TO FACP TO PROVIDE OFF-PREMISE MONITORING.
- FURNISH AND INSTALL NEW REMOTE ANNUNCIATOR PANEL (KEYPAD) WITH ALPHANUMERIC FIRE-OUT FOR FIRE ALARM SYSTEM. LOCATE ANNUNCIATOR NEAR MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SHOWN ON PLANS. LOCATION OF ANNUNCIATOR PANEL MAY BE ADJUSTED BY CONTRACTOR TO FACILITATE INSTALLATION BUT THE PANEL SHALL BE VISIBLE FROM THE MAIN ENTRANCE DOORS TO THE BUILDING. WALL MOUNT ANNUNCIATOR AT 54" AFF. ANNUNCIATOR SHALL BE MOUNTED ON RECESSED TYPE JUNCTION BOX AND CONDUIT TO BOX SHALL BE CONCEALED IN WALL.
- NEW FIRE SPRINKLER SYSTEM RISER. INSTALL ADDRESSABLE MONITOR MODULE AT EACH WATER FLOW SWITCH AND VALVE SUPERVISORY SWITCH TO FACILITATE MONITORING OF SWITCH AS AN ADDRESSABLE POINT. MONITOR MODULE SHALL MOUNT IN 4" SQUARE JUNCTION BOX AND BE EQUIPPED WITH AN EXTERNAL LED VISIBLE FROM FLOW OR VALVE SUPERVISORY SWITCH. PROGRAM ACTIVATION OF WATER FLOW SWITCH AS AN ALARM SIGNAL AND ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL.
- EXTEND SIGNALLING LINE CIRCUIT(S) (SLC) FROM FACP IN ADMINISTRATION BUILDING TO INITIATING DEVICES AND REMOTE NOTIFICATION CIRCUIT POWER SUPPLIES IN LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. INSTALL SLC IN EXISTING BURIED CONDUITS THAT RUN BETWEEN ELECTRICAL ROOM IN EACH BUILDING AND UNDERGROUND VAULT LOCATED BETWEEN ADMINISTRATION AND LABORATORY BUILDING (SEE SHEET FP-11). PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSORS IN ACCORDANCE WITH NFPA 70 ARTICLE 285 ON SLC AT EACH POINT THAT THE CIRCUIT ENTERS OR EXITS A BUILDING. TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS. PROVIDE ADDITIONAL SLC CIRCUITS OR CIRCUIT EXTENDER/REPEATER AS REQUIRED.
- FURNISH AND INSTALL A REMOTE POWER SUPPLY TO POWER NOTIFICATION APPLIANCE CIRCUITS (NAC) FOR THE LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. PROVIDE AN ADDRESSABLE RELAY MODULE TO ACTIVATE NAC CIRCUITS UPON OPERATION OF INITIATING DEVICES IN THAT BUILDING ONLY. PROVIDE AN ADDRESSABLE MONITOR MODULE TO SUPERVISE TROUBLE CONTACTS OF REMOTE POWER SUPPLY. INSTALL BATTERIES TO PROVIDE SECONDARY POWER SUPPLY FOR 24 HOURS IN STANDBY AND 5 MINUTES IN ALARM. LAYOUT OF NAC CIRCUITS SHALL LIMIT VOLTAGE DROP BETWEEN POWER SUPPLY AND MOST REMOTE APPLIANCE TO LESS THAN 20%. PROVIDE MODULES AS REQUIRED TO SYNCHRONIZE STROBE FLASHES OF ALL NOTIFICATION APPLIANCES WITHIN A SINGLE FIELD OF VIEW.
- FURNISH AND INSTALL SMOKE DETECTORS AT EACH ELEVATOR LOBBY AND IN THE ELEVATOR EQUIPMENT ROOM TO PROVIDE ELEVATOR RECALL FUNCTIONS IN ACCORDANCE WITH NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAYS TO INTERFACE WITH ELEVATOR CONTROLS AND PROGRAM RECALL FUNCTIONS AS FOLLOWS:
1. OPERATION OF SMOKE DETECTOR 2ND FLOOR LOBBY AND ELEVATOR EQUIPMENT ROOM - ELEVATOR RECALL TO 1ST FLOOR.
2. OPERATION OF SMOKE DETECTOR 1ST FLOOR LOBBY - ELEVATOR RECALL TO 2ND FLOOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL HEAT DETECTORS ADJACENT TO FIRE SPRINKLERS IN ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAY AND SHUNT TRIP TO DISCONNECT POWER TO ELEVATOR EQUIPMENT UPON OPERATION OF EITHER HEAT DETECTOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL ADDRESSABLE RELAY TO PROVIDE ACTUATION OF FIRE/SMOKE DAMPERS. RELAY SHALL BE NORMALLY ENERGIZED AND RATED FOR VOLTAGE AND CURRENT REQUIRED FOR DAMPER ACTUATION.

FIRE ALARM EQUIPMENT LEGEND

DEVICE	DESCRIPTION	MOUNTING	REMARKS
FACP	FIRE ALARM CONTROL PANEL	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	SILENT KNIGHT MODEL S820XL OR FIRE-LITE MODEL MS-9600 WITH DACT-UD
ANN	FIRE ALARM ANNUNCIATOR PANEL	WALL MOUNT ON RECESSED J-BOX AT 54" AFF	KEY PAD WITH ALPHANUMERIC (MINIMUM 80 CHARACTERS) WITH INPUT KEYS TO ALLOW SYSTEM RESET AND ALARM SILENCE
NAC-PS	REMOTE POWER SUPPLIES FOR NOTIFICATION APPLIANCE CIRCUITS	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONTROLLED BY ADDRESSABLE RELAY ON SIGNALLING LINE CIRCUIT
SCD	ADDRESSABLE SMOKE DETECTOR	CEILING MOUNT ON RECESSED J-BOX.	INSTALL ON CEILING IN ALL CORRIDORS, LOBBIES AND ABOVE FIRE ALARM CONTROL EQUIPMENT AS INDICATED ON PLANS.
HCD	ADDRESSABLE HEAT DETECTOR	SURFACE MOUNT ON J-BOX WITHIN 24" OF FIRE SPRINKLER	TO PROVIDE POWER DISCONNECT TO ELEVATOR PRIOR TO OPERATION OF ADJACENT SPRINKLER
P	ADDRESSABLE PULL STATION	WALL MOUNT AT 48" AFF ON RECESSED J-BOX. CONDUIT SHALL BE CONCEALED IN WALL.	INSTALL AT EACH EXIT DOOR AS INDICATED ON PLANS
M	ADDRESSABLE MONITOR MODULE	MOUNT ON 4-SQUARE J-BOX NEAR CONVENTIONAL INITIATING DEVICES AS AN ADDRESSABLE POINT	TO FACILITATE MONITORING OF CONTACTS OF CONVENTIONAL INITIATING DEVICES AS AN ADDRESSABLE POINT
C	ADDRESSABLE CONTROL MODULE	MOUNT ON 4-SQUARE J-BOX WITHIN 3' OF DEVICE OR CIRCUIT CONTROLLED	FOR PROTECTED PREMISE FIRE SAFETY FUNCTIONS (ELEVATOR RECALL AND NAC ACTIVATION)
WFS	WATER FLOW SWITCH	FIRE SPRINKLER RISER	TO DETECT WATER FLOW IN FIRE SPRINKLER SYSTEM
VS	VALVE SUPERVISORY SWITCH	FIRE SPRINKLER CONTROL VALVES	TO MONITOR POSITION OF CONTROL VALVES
AS	FIRE ALARM STROBE	WALL MOUNT AT 80" AFF OR CEILING MOUNT ON RECESSED J-BOX	STROBE SHALL HAVE A MINIMUM CANDELA RATING OF 150cd INTENSITY SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW.
AS (WALL)	FIRE ALARM HORN/STROBE (WALL)	WALL MOUNT AT 80" AFF ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
AS (CEILING)	FIRE ALARM HORN/STROBE (CEILING)	CEILING MOUNTED ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
EAH	EXTENSOR FIRE ALARM HORN	WALL MOUNT AT 10'-0" AFF ON WEATHER PROOF BACK BOX	EXTENSOR ALARM. SET HORN VOLUME TO MAXIMUM LEVEL.
FD	FIRE/SMOKE DAMPER	EXISTING	PROVIDE ADDRESSABLE MODULE FOR CONTROL

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE ALARM
SYSTEM PLAN
ADMINISTRATION
BUILDING LEVEL 1
FP-3.1

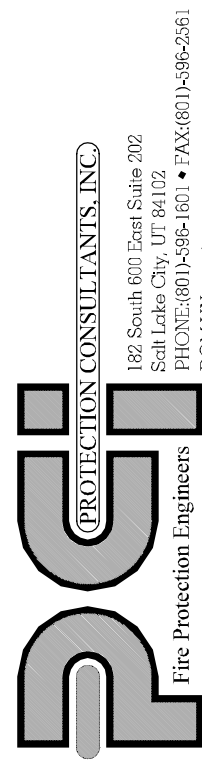
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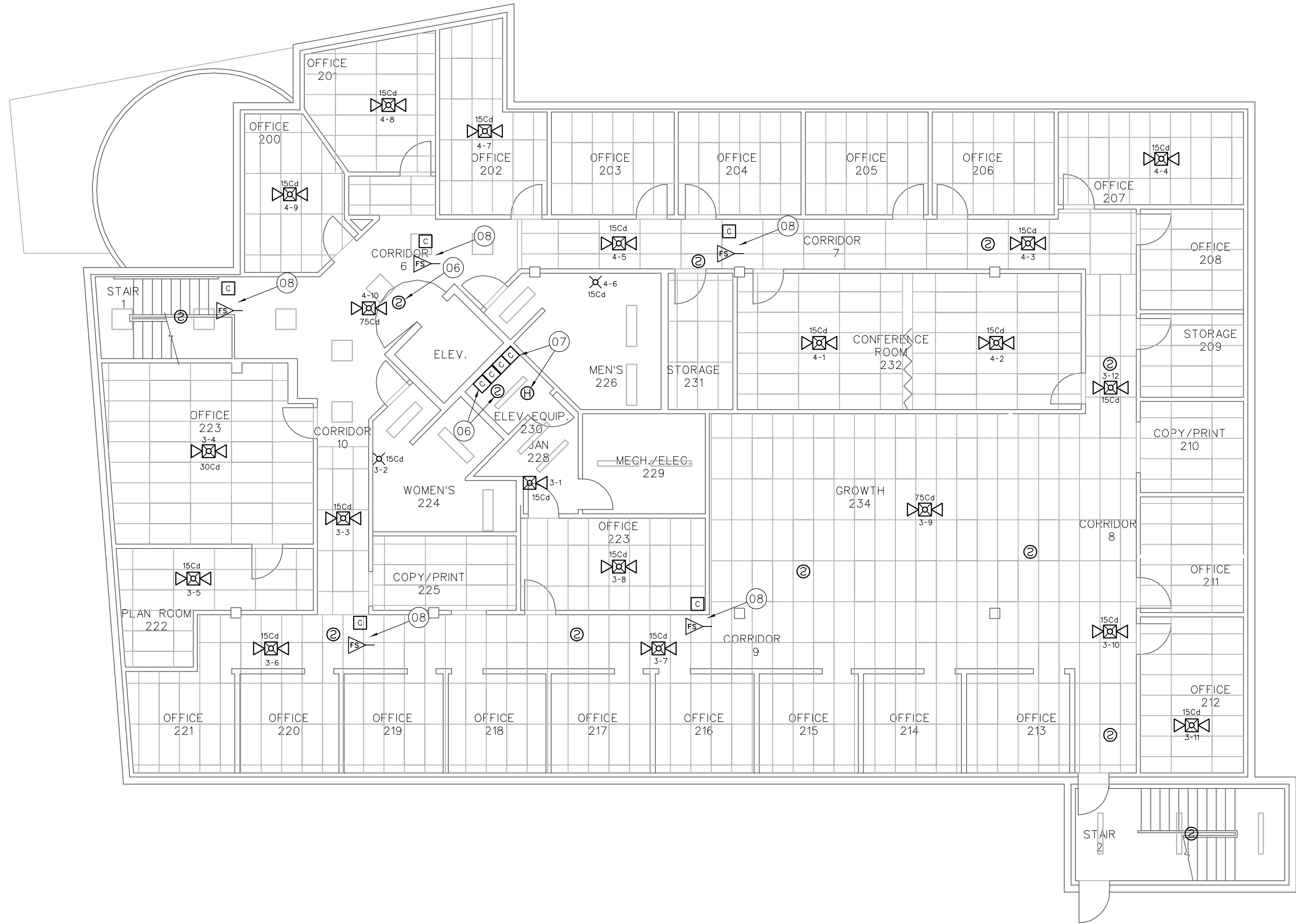
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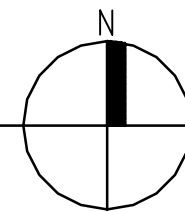
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FIRE ALARM SYSTEM PLAN – ADMINISTRATION BUILDING LEVEL 2

1/8" = 1'-0"



FIRE ALARM SYSTEM GENERAL NOTES

- SCOPE OF WORK: WORK SHALL INCLUDE INSTALLATION OF NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING ALL CONTROL EQUIPMENT, POWER SUPPLIES, INITIATING CIRCUITS AND DEVICES, NOTIFICATION APPLIANCE CIRCUITS AND DEVICES REQUIRED TO CONSTITUTE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM THROUGHOUT BUILDING IN ACCORDANCE WITH NFPA 72, IBC, IFC THESE DRAWINGS AND PROJECT SPECIFICATIONS.
- APPLICABLE CODES/STANDARDS:
INTERNATIONAL BUILDING CODE - 2003 EDITION
INTERNATIONAL FIRE CODE - 2003 EDITION
UTAH STATE FIRE MARSHAL RULE R710-4
NFPA 70 - 2002 EDITION
NFPA 72 - 2002 EDITION
- QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL, AND DEVICES USED FOR THE FIRE ALARM SYSTEM INSTALLATION SHALL BE UL LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). MAJOR SYSTEM COMPONENTS (CONTROL PANELS, INITIATING DEVICES, ADDRESSABLE MODULES, AND RELAYS, POWER SUPPLIES, ETC.) SHALL BE FROM A STATE OF UTAH DFCM APPROVED MANUFACTURER. APPROVED MANUFACTURERS INCLUDE FIRE-LITE AND SILENT KNIGHT.
- SUBMITTALS: FIRE ALARM SYSTEM CONTRACTOR SHALL PREPARE AND SUBMIT SHOPS DRAWINGS TO UTAH STATE FIRE MARSHAL'S OFFICE, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.
- SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE REQUIREMENTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS. SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER. PROVIDE A SINGLE FACP FOR ALL 4 BUILDINGS. EXTEND SLC FROM ONE BUILDING TO THE NEXT VIA EXISTING UNDERGROUND CONDUIT (COORDINATE WITH OWNER). TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. PROVIDE CIRCUIT EXTENDERS/BOOSTERS AS REQUIRED. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION ON ALL CIRCUITS WHERE THEY ENTER OR LEAVE A BUILDING.
- OCCUPANT NOTIFICATION: NOTIFICATION CIRCUITS SHALL BE ZONED WITH ONE ZONE PER BUILDING. PROVIDE REMOTE NOTIFICATION POWER SUPPLIES IN EACH BUILDING TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONFIGURE NOTIFICATION CIRCUITS IN EACH BUILDING TO ACTIVATE ONLY UPON OPERATION OF AN INITIATING DEVICE IN THAT BUILDING.
- WIRING/CONDUIT: ALL WIRING TO BE FREE OF OPENS, SHORTS AND GROUNDS. INSTALL ALL WIRING IN MINIMUM 3/4" RIGID CONDUIT OR EMT. WIRING DROPS (5 MAX) TO SINGLE DEVICES MAY BE INSTALLED IN MINIMUM 3/4" FLEXIBLE CONDUIT. CONDUIT INSTALLATION SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF NEC (NFPA 70) AND DFCM STANDARDS. ALL CONDUIT PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND. ALL WIRING USED IN THE FIRE ALARM SYSTEM SHALL BE FPL (FIRE POWER LIMITED) WITH 300V INSULATION OR EQUIVALENT AS PER NFPA 70 ARTICLE 760.
- WIRING STYLES (PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 1 OR CLASS B STYLE 2. SIGNALING LINE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 6 OR 7 CIRCUITS. NOTIFICATION APPLIANCE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 2.
- POWER: INSTALL NEW DEDICATED BRANCH CIRCUIT PER NFPA 70 AND NFPA 72 TO PROVIDE PRIMARY POWER TO NEW FACP AND EACH REMOTE POWER SUPPLY. FURNISH A BATTERY BACKUP TO PROVIDE SECONDARY POWER SUPPLY TO FACP AND REMOTE POWER SUPPLIES. BATTERY BACKUP SHALL BE OF SUFFICIENT CAPACITY TO PROVIDE 24 HOURS OF STANDBY POWER WITH AN ADDITIONAL RESERVE TO OPERATE SYSTEM FOR 5 MINUTES IN ALARM.
- INITIATING DEVICES:
SLC CIRCUITS: SLC LOOP DEVICE ADDRESSING SHALL NOT EXCEED 127 DETECTORS (SMOKES, HEATS, DUCT SMOKES, ETC.) OR 127 MODULES (PULL STATIONS, MONITOR, CONTROL, ETC.) PER LOOP. AT LEAST 19 ADDRESSES (15%) SHOULD BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS.
SMOKE DETECTORS: PROVIDE SMOKE DETECTORS WHERE SHOWN ON PLANS IN ALL CORRIDORS, LOBBIES, ELEVATOR EQUIPMENT ROOM AND ABOVE FIRE ALARM CONTROL EQUIPMENT. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN OR 15' FROM FURTHEST WALL.
MANUAL PULL STATIONS: INSTALL PULL STATIONS AT EACH BUILDING EXIT AS SHOWN ON PLANS. MOUNT PULL STATIONS AT 48" AFF ON RECESSED JUNCTION BOXES.
HEAT DETECTORS: PROVIDE HEAT DETECTORS WHERE SHOWN ON PLANS IN ELEVATOR EQUIPMENT ROOM AND ELEVATOR PIT. MAXIMUM SPACING FOR HEAT DETECTORS SHALL BE 50' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL.
ADDRESSABLE MODULES: PROVIDE ADDRESSABLE MODULES WITH EXTERNALLY VISIBLE LED TO MONITOR CONVENTIONAL DEVICES (WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, ETC.). LOCATE MONITOR MODULE ADJACENT TO FLOW OR TAMPER SWITCH IN AN ACCESSIBLE LOCATION. LABEL AS PART OF THE FIRE ALARM SYSTEM WITH THE NAME OF THE DEVICE MONITORED ON THE COVER OF THE JUNCTION BOX.
- NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT EACH BUILDING IN ACCORDANCE WITH PUBLIC MODE SIGNALING REQUIREMENTS OF NFPA 72. VOLUME OF HORNS AND SPEAKERS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 DB ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL PUBLIC AREAS OF THE BUILDING AS WELL AS PRIVATE OFFICES AND AREAS WITH POSSIBLE OCCUPANCY BY HEARING IMPAIRED PERSONS. PROVIDE SYNCHRONIZATION OF STROBE FLASHES.
- FIRE SAFETY FUNCTIONS:
ELEVATOR RECALL: CONTROL MODULES WITH RELAY CONTACTS SHALL BE INSTALLED AND PROGRAMMED TO PROVIDE ELEVATOR RECALL AND ELEVATOR POWER SHUNT TRIP. THE CONTROL RELAY MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROL ED. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DEVICES TO BE CONTROLLED.
FIRE/SMOKE DAMPERS: PROVIDE CONTROL MODULES WITH RELAY CONTACTS TO RELEASE ALL EXISTING FIRE/SMOKE DAMPERS. INSTALL MODULE WITH 36" OF DAMPER OR POWER CIRCUIT TO DAMPER MODULE SHALL BE LISTED FOR VOLTAGE AND CURRENT REQUIRED TO OPERATE DAMPERS. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DAMPERS TO BE CONTROLLED.
- TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY UTAH STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST THREE DAYS PRIOR TO SCHEDULED TEST.

FIRE ALARM SYSTEM KEY NOTES

- FURNISH AND INSTALL NEW ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) FOR UDOT REGION 3 COMPLEX (4 BUILDINGS). INSTALL FACP IN ADMINISTRATION BUILDING AND EXTEND SIGNALING LINE CIRCUIT USING EXISTING UNDERGROUND CONDUIT PROVIDED BY OWNER (WIRE BY CONTRACTOR). FACP SHALL BE SILENT KNIGHT 5820 XL OR FIRE-LITE MS-9600 WITH DACT-UD. EXTEND PHONE LINES (PRIMARY AND SECONDARY) FROM EXISTING TELEPHONE TERMINAL BOARD TO FACP TO PROVIDE OFF-PREMISE MONITORING.
- FURNISH AND INSTALL NEW REMOTE ANNUNCIATOR PANEL (KEYPAD WITH ALPHANUMERIC READ OUT) FOR FIRE ALARM SYSTEM. LOCATE ANNUNCIATOR NEAR MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SHOWN ON PLANS. LOCATION OF ANNUNCIATOR PANEL MAY BE ADJUSTED BY CONTRACTOR TO FACILITATE INSTALLATION BUT THE PANEL SHALL BE VISIBLE FROM THE MAIN ENTRANCE DOORS TO THE BUILDING. WALL MOUNT ANNUNCIATOR AT 54" AFF. ANNUNCIATOR SHALL BE MOUNTED ON RECESSED TYPE JUNCTION BOX AND CONDUIT TO BOX SHALL BE CONCEALED IN WALL.
- NEW FIRE SPRINKLER SYSTEM RISER. INSTALL ADDRESSABLE MONITOR MODULE AT EACH WATER FLOW SWITCH AND VALVE SUPERVISORY SWITCH TO FACILITATE MONITORING OF SWITCH AS AN ADDRESSABLE POINT. MONITOR MODULE SHALL MOUNT IN 4" SQUARE JUNCTION BOX AND BE EQUIPPED WITH AN EXTERNAL LED VISIBLE FROM FLOW OR VALVE SUPERVISORY SWITCH. PROGRAM ACTIVATION OF WATER FLOW SWITCH AS AN ALARM SIGNAL AND ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL.
- EXTEND SIGNALING LINE CIRCUITS (SLC) FROM FACP IN ADMINISTRATION BUILDING TO INITIATING DEVICES AND REMOTE NOTIFICATION CIRCUIT POWER SUPPLIES IN LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. INSTALL SLC IN EXISTING BURIED CONDUITS THAT RUN BETWEEN ELECTRICAL ROOM IN EACH BUILDING AND UNDERGROUND VAULT LOCATED BETWEEN ADMINISTRATION AND LABORATORY BUILDING (SEE SHEET FP-1.1). PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSORS IN ACCORDANCE WITH NFPA 70 ARTICLE 285 ON SLC AT EACH POINT THAT THE CIRCUIT ENTERS OR EXITS A BUILDING. TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS. PROVIDE ADDITIONAL SLC CIRCUITS OR CIRCUIT EXTENDER/REPEATER AS REQUIRED.
- FURNISH AND INSTALL A REMOTE POWER SUPPLY TO POWER NOTIFICATION APPLIANCE CIRCUITS (NAC) FOR THE LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. PROVIDE ADDRESSABLE RELAY MODULE TO ACTIVATE NAC CIRCUITS UPON OPERATION OF INITIATING DEVICES IN THAT BUILDING ONLY. PROVIDE AN ADDRESSABLE MONITOR MODULE TO SUPERVISE, TROUBLE CONTACTS OF REMOTE POWER SUPPLY. INSTALL BATTERIES TO PROVIDE SECONDARY POWER SUPPLY FOR 24 HOURS IN STANDBY AND 5 MINUTES IN ALARM. LAYOUT OF NAC CIRCUITS SHALL LIMIT VOLTAGE DROP BETWEEN POWER SUPPLY AND MOST REMOTE APPLIANCE TO LESS THAN 20%. PROVIDE MODULES AS REQUIRED TO SYNCHRONIZE STROBE FLASHES OF ALL NOTIFICATION APPLIANCES WITHIN A SINGLE FIELD OF VIEW.
- FURNISH AND INSTALL SMOKE DETECTORS AT EACH ELEVATOR LOBBY AND IN THE ELEVATOR EQUIPMENT ROOM TO PROVIDE ELEVATOR RECALL FUNCTIONS IN ACCORDANCE WITH NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAYS TO INTERFACE WITH ELEVATOR CONTROLS AND PROGRAM RECALL FUNCTIONS AS FOLLOWS:
1. OPERATION OF SMOKE DETECTOR 2ND AND FLOOR LOBBY AND ELEVATOR EQUIPMENT ROOM - ELEVATOR RECALL TO 1ST FLOOR.
2. OPERATION OF SMOKE DETECTOR 1ST FLOOR LOBBY - ELEVATOR RECALL TO 2ND FLOOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL HEAT DETECTORS ADJACENT TO FIRE SPRINKLERS IN ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAY AND SHUNT TRIP BREAKER TO DISCONNECT POWER TO ELEVATOR EQUIPMENT UPON OPERATION OF EITHER HEAT DETECTOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL ADDRESSABLE RELAY TO PROVIDE ACTUATION OF FIRE/SMOKE DAMPERS. RELAY SHALL BE NORMALLY ENERGIZED AND RATED FOR VOLTAGE AND CURRENT REQUIRED FOR DAMPER ACTUATION.

FIRE ALARM EQUIPMENT LEGEND

DEVICE	DESCRIPTION	MOUNTING	REMARKS
FACP	FIRE ALARM CONTROL PANEL	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	SILENT KNIGHT MODEL 5820XL ON FIRE-LITE MODEL MS-9600 WITH DACT-UD
ANN	FIRE ALARM ANNUNCIATOR PANEL	WALL MOUNT ON RECESSED J-BOX AT 54" AFF.	KEY PAD WITH ALPHA-NUMERIC (MINIMUM 80 CHARACTERS) WITH INPUT KEYS TO ALLOW SYSTEM RESET AND ALARM SILENCE.
NAC-PS	REMOTE POWER SUPPLIES FOR NOTIFICATION APPLIANCE CIRCUITS	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONTROLLED BY ADDRESSABLE RELAY ON SIGNALING LINE CIRCUIT.
⊙	ADDRESSABLE SMOKE DETECTOR	CEILING MOUNT ON RECESSED J-BOX	INSTALL ON CEILING IN ALL CORRIDORS, LOBBIES AND ABOVE FIRE ALARM CONTROL EQUIPMENT AS INDICATED ON PLANS.
⊙	ADDRESSABLE HEAT DETECTOR	SURFACE MOUNT ON J-BOX WITHIN 24" OF FIRE SPRINKLER	TO PROVIDE POWER DISCONNECT TO ELEVATOR PRIOR TO OPERATION OF ADJACENT SPRINKLER
⊙	ADDRESSABLE PULL STATION	WALL MOUNT AT 48" AFF ON RECESSED J-BOX. CONDUIT SHALL BE CONCEALED IN WALL.	INSTALL AT EACH EXIT DOOR AS INDICATED ON PLANS
M	ADDRESSABLE MONITOR MODULE	MOUNT ON 4" SQUARE J-BOX NEAR CONVENTIONAL DEVICE TO BE MONITORED.	TO FACILITATE MONITORING OF CONTACTS OF CONVENTIONAL INITIATING DEVICES AS AN ADDRESSABLE POINT
C	ADDRESSABLE CONTROL MODULE	MOUNT ON 4" SQUARE J-BOX WITHIN 5' OF DEVICE OR CIRCUIT CONTROLLED	FOR PROTECTED PREMISE FIRE SAFETY FUNCTIONS: ELEVATOR RECALL AND NAC ACTIVATION
◇	WATER FLOW SWITCH	FIRE SPRINKLER RISER	TO DETECT WATER FLOW IN FIRE SPRINKLER SYSTEM
◇	VALVE SUPERVISORY SWITCH	FIRE SPRINKLER CONTROL VALVES	TO MONITOR POSITION OF CONTROL VALVES
X	FIRE ALARM STROBE	WALL MOUNT AT 80" AFF OR CEILING MOUNT ON RECESSED J-BOX	STROBE SHALL HAVE A MINIMUM CANDELA RATING OF 1500 INTENSITY SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⊙	FIRE ALARM HORN/STROBE (WALL)	WALL MOUNT AT 80" AFF ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⊙	FIRE ALARM HORN/STROBE (CEILING)	CEILING MOUNTED ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⊙	EXTERIOR FIRE ALARM HORN	WALL MOUNT AT 10'-0" AFF ON WEATHER PROOF BACK BOX	EXTERIOR ALARM. SET HORN VOLUME TO MAXIMUM LEVEL.
⊙	FIRE/SMOKE DAMPER	EXISTING	PROVIDE ADDRESSABLE MODULE FOR CONTROL

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE ALARM
SYSTEM PLAN
ADMINISTRATION
BUILDING LEVEL 2
FP-3.2

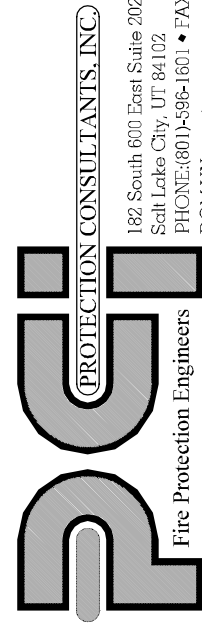
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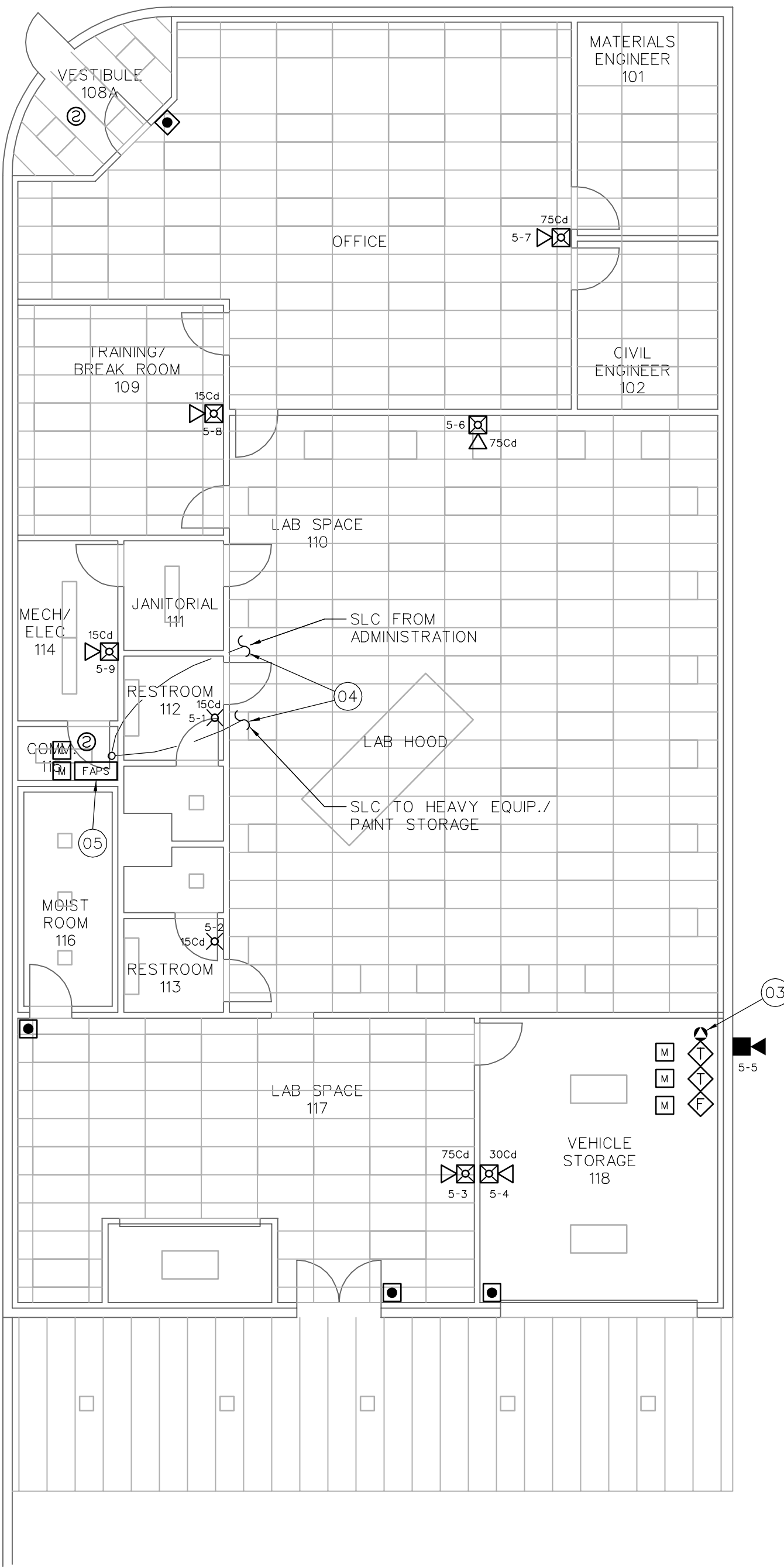
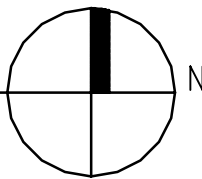
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FIRE ALARM SYSTEM PLAN – LABORATORY BUILDING

1/8" = 1'-0"



FIRE ALARM SYSTEM GENERAL NOTES

- SCOPE OF WORK: WORK SHALL INCLUDE INSTALLATION OF NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING ALL CONTROL EQUIPMENT, POWER SUPPLIES, INITIATING CIRCUITS AND DEVICES, NOTIFICATION APPLIANCE CIRCUITS AND DEVICES REQUIRED TO CONSTITUTE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM THROUGHOUT BUILDING IN ACCORDANCE WITH NFPA 72, IBC, IFC THESE DRAWINGS AND PROJECT SPECIFICATIONS.
- APPLICABLE CODES/STANDARDS: INTERNATIONAL BUILDING CODE - 2003 EDITION INTERNATIONAL FIRE CODE - 2003 EDITION UTAH STATE FIRE MARSHAL RULE R710-4 NFPA 70 - 2002 EDITION NFPA 72 - 2002 EDITION
- QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL, AND DEVICES LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). MAJOR SYSTEM COMPONENTS (CONTROL PANELS, INITIATING DEVICES, ADDRESSABLE MODULES, AND RELAYS, POWER SUPPLIES, ETC.) SHALL BE FROM A STATE OF UTAH DFCM APPROVED MANUFACTURER. APPROVED MANUFACTURERS INCLUDE FIRE-LITE AND SILENT KNIGHT.
- SUBMITTALS: FIRE ALARM SYSTEM CONTRACTOR SHALL PREPARE AND SUBMIT SHOPS DRAWINGS TO UTAH STATE FIRE MARSHAL'S OFFICE, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.
- SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE REQUIREMENTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS. SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER. PROVIDE A SINGLE FACP FOR ALL 4 BUILDINGS. EXTEND SLC FROM ONE BUILDING TO THE NEXT VIA EXISTING UNDERGROUND CONDUIT (COORDINATE WITH OWNER). TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. PROVIDE CIRCUIT EXTENDERS/BOOSTERS AS REQUIRED. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION ON ALL CIRCUITS WHERE THEY ENTER OR LEAVE A BUILDING.
- OCCUPANT NOTIFICATION: NOTIFICATION CIRCUITS SHALL BE ZONED WITH ONE ZONE PER BUILDING. PROVIDE REMOTE NOTIFICATION POWER SUPPLIES IN EACH BUILDING TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONFIGURE NOTIFICATION CIRCUITS IN EACH BUILDING TO ACTIVATE ONLY UPON OPERATION OF AN INITIATING DEVICE IN THAT BUILDING.
- WIRING/CONDUIT: ALL WIRING TO BE FREE OF OPENS, SHORTS AND GROUNDS. INSTALL ALL WIRING IN MINIMUM 3/4" RIGID CONDUIT OR EMT. WIRING DROPS (5 MAX) TO SINGLE DEVICES MAY BE INSTALLED IN MINIMUM 3/4" FLEXIBLE CONDUIT. CONDUIT INSTALLATION SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF NEC (NFPA 70) AND DFCM STANDARDS. ALL CONDUIT PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND. ALL WIRING USED IN THE FIRE ALARM SYSTEM SHALL BE FPL (FIRE POWER LIMITED) WITH 300V INSULATION OR EQUIVALENT AS PER NFPA 70 ARTICLE 760.
- WIRING STYLES (PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYL E CIRCUITS. SIGNALING LINE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 6 OR 7 CIRCUITS. NOTIFICATION APPLIANCE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE Z.
- POWER: INSTALL NEW DEDICATED BRANCH CIRCUIT PER NFPA 70 AND NFPA 72 TO PROVIDE PRIMARY POWER TO NEW FACP AND EACH REMOTE POWER SUPPLY. FURNISH A BATTERY BACKUP TO PROVIDE SECONDARY POWER SUPPLY TO FACP AND REMOTE POWER SUPPLIES. BATTERY BACKUP SHALL BE OF SUFFICIENT CAPACITY TO PROVIDE 24 HOURS OF STANDBY POWER WITH AN ADDITIONAL RESERVE TO OPERATE SYSTEM FOR 5 MINUTES IN ALARM.
- INITIATING DEVICES: SLC CIRCUITS: SLC LOOP DEVICE ADDRESSING SHALL NOT EXCEED 127 DETECTORS (SMOKES, HEATS, DUCT SMOKE, ETC.) OR 127 MODULES (PULL STATIONS, MONITOR, CONTROL, ETC.) PER LOOP. AT LEAST 19 ADDRESSES (15%) SHOULD BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS. SMOKE DETECTORS: PROVIDE SMOKE DETECTORS WHERE SHOWN ON PLANS IN ALL CORRIDORS, LOBBIES, ELEVATOR EQUIPMENT ROOM AND ABOVE FIRE ALARM CONTROL EQUIPMENT. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN OR 15' FROM FURTHEST WALL. MANUAL PULL STATIONS: INSTALL PULL STATIONS AT EACH BUILDING EXIT AS SHOWN ON PLANS. MOUNT PULL STATIONS AT 48" AFF ON RECESSED JUNCTION BOXES. HEAT DETECTORS: PROVIDE HEAT DETECTORS WHERE SHOWN ON PLANS IN ELEVATOR EQUIPMENT ROOM AND ELEVATOR PIT. MAXIMUM SPACING FOR HEAT DETECTORS SHALL BE 50' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL. ADDRESSABLE MODULES: PROVIDE ADDRESSABLE MODULES WITH EXTERNALLY VISIBLE LED TO MONITOR CONVENTIONAL DEVICES (WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, ETC.). LOCATE MONITOR MODULE ADJACENT TO FLOW OR TAMPER SWITCH IN AN ACCESSIBLE LOCATION. LABEL AS PART OF THE FIRE ALARM SYSTEM WITH THE NAME OF THE DEVICE MONITORED ON THE COVER OF THE JUNCTION BOX.
- NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT EACH BUILDING IN ACCORDANCE WITH PUBLIC MODE SIGNALLING REQUIREMENTS OF NFPA 72. VOLUME OF HORNS AND SPEAKERS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 DB ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL PUBLIC AREAS OF THE BUILDING AS WELL AS PRIVATE OFFICES AND AREAS WITH POSSIBLE OCCUPANCY BY HEARING IMPAIRED PERSONS. PROVIDE SYNCHRONIZATION OF STROBE FLASHES.
- FIRE SAFETY FUNCTIONS: ELEVATOR RECALL: CONTROL MODULES WITH RELAY CONTACTS SHALL BE INSTALLED AND PROGRAMMED TO PROVIDE ELEVATOR RECALL AND ELEVATOR POWER SHUNT TRIP. THE CONTROL RELAY MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROLLED. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DEVICES TO BE CONTROLLED. FIRE/SMOKE DAMPERS: PROVIDE CONTROL MODULES WITH RELAY CONTACTS TO RELEASE ALL EXISTING FIRE/SMOKE DAMPERS. INSTALL MODULE WITH 36" OF DAMPER OR POWER CIRCUIT TO DAMPER MODULE SHALL BE LISTED FOR VOLTAGE AND CURRENT REQUIRED TO OPERATE DAMPERS. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DAMPERS TO BE CONTROLLED.
- TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY UTAH STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST THREE DAYS PRIOR TO SCHEDULED TEST.

FIRE ALARM SYSTEM KEY NOTES

- FURNISH AND INSTALL NEW ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) FOR UDOT REGION 3 COMPLEX (4 BUILDINGS). INSTALL FACP IN ADMINISTRATION BUILDING AND EXTEND SIGNALING LINE CIRCUIT BETWEEN BUILDINGS USING EXISTING UNDERGROUND CONDUIT PROVIDED BY OWNER (WIRE BY CONTRACTOR). FACP SHALL BE SILENT KNIGHT 5820 XL OR FIRE-LITE MS-9600 WITH DACT-UD. EXTEND PHONE LINES (PRIMARY AND SECONDARY) FROM EXISTING TELEPHONE TERMINAL BOARD TO FACP TO PROVIDE OFF-PREMISE MONITORING.
- FURNISH AND INSTALL NEW REMOTE ANNUNCIATOR PANEL (KEYPAD) WITH ALPHANUMERIC READ OUT FOR FIRE ALARM SYSTEM. LOCATE ANNUNCIATOR NEAR MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SHOWN ON PLANS. LOCATION OF ANNUNCIATOR PANEL MAY BE ADJUSTED BY CONTRACTOR TO FACILITATE INSTALLATION BUT THE PANEL SHALL BE VISIBLE FROM THE MAIN ENTRANCE DOORS TO THE BUILDING. WALL MOUNT ANNUNCIATOR AT 54" AFF. ANNUNCIATOR SHALL BE MOUNTED ON RECESSED TYPE JUNCTION BOX AND CONDUIT TO BOX SHALL BE CONCEALED IN WALL.
- NEW FIRE SPRINKLER SYSTEM RISER. INSTALL ADDRESSABLE MONITOR MODULE AT EACH WATER FLOW SWITCH AND VALVE SUPERVISORY SWITCH TO FACILITATE MONITORING OF SWITCH AS AN ADDRESSABLE POINT. MONITOR MODULE SHALL MOUNT IN 4" SQUARE JUNCTION BOX AND BE EQUIPED WITH AN EXTERNAL LED VISIBLE FROM FLOW OR VALVE SUPERVISORY SWITCH. PROGRAM ACTIVATION OF WATER FLOW SWITCH AS AN ALARM SIGNAL AND ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL.
- EXTEND SIGNALLING LINE CIRCUIT(S) (SLC) FROM FACP IN ADMINISTRATION BUILDING TO INITIATING DEVICES AND REMOTE NOTIFICATION CIRCUIT POWER SUPPLIES IN LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. INSTALL SLC IN EXISTING BURIED CONDUITS THAT RUN BETWEEN ELECTRICAL ROOM IN EACH BUILDING AND UNDERGROUND VAULT LOCATED BETWEEN ADMINISTRATION AND LABORATORY BUILDING (SEE SHEET FP-11). PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSORS IN ACCORDANCE WITH NFPA 70 ARTICLE 285 ON SLC AT EACH POINT THAT THE CIRCUIT ENTERS OR EXITS A BUILDING. TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS. PROVIDE ADDITIONAL SLC CIRCUITS OR CIRCUIT EXTENDER/REPEATER AS REQUIRED.
- FURNISH AND INSTALL A REMOTE POWER SUPPLY TO POWER NOTIFICATION APPLIANCE CIRCUITS (NAC) FOR LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. PROVIDE AN ADDRESSABLE RELAY MODULE TO ACTIVATE NAC CIRCUITS UPON OPERATION OF INITIATING DEVICES IN THAT BUILDING ONLY. PROVIDE AN ADDRESSABLE MONITOR MODULE TO SUPERVISE TROUBLE CONTACTS OF REMOTE POWER SUPPLY. INSTALL BATTERIES TO PROVIDE SECONDARY POWER SUPPLY FOR 24 HOURS IN STANDBY AND 5 MINUTES IN ALARM. LAYOUT OF NAC CIRCUITS SHALL LIMIT VOLTAGE DROP BETWEEN POWER SUPPLY AND MOST REMOTE APPLIANCE TO LESS THAN 20%. PROVIDE MODULE AS REQUIRED TO SYNCHRONIZE STROBE FLASHES OF ALL NOTIFICATION APPLIANCES WITHIN A SINGLE FIELD OF VIEW.
- FURNISH AND INSTALL SMOKE DETECTORS AT EACH ELEVATOR LOBBY AND IN THE ELEVATOR EQUIPMENT ROOM TO PROVIDE ELEVATOR RECALL FUNCTIONS IN ACCORDANCE WITH NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAYS TO INTERFACE WITH ELEVATOR CONTROLS AND PROGRAM RECALL FUNCTIONS AS FOLLOWS:
 - OPERATION OF SMOKE DETECTOR 2ND FLOOR LOBBY AND ELEVATOR EQUIPMENT ROOM - ELEVATOR RECALL TO 1ST FLOOR.
 - OPERATION OF SMOKE DETECTOR 1ST FLOOR LOBBY - ELEVATOR RECALL TO 2ND FLOOR.CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL HEAT DETECTORS ADJACENT TO FIRE SPRINKLERS IN ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAY AND SHUNT TRIP BREAKER TO DISCONNECT POWER TO ELEVATOR EQUIPMENT UPON OPERATION OF EITHER HEAT DETECTOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL ADDRESSABLE RELAY TO PROVIDE ACTUATION OF FIRE/SMOKE DAMPERS. RELAY SHALL BE NORMALLY ENERGIZED AND RATED FOR VOLTAGE AND CURRENT REQUIRED FOR DAMPER ACTUATION.

FIRE ALARM EQUIPMENT LEGEND

DEVICE	DESCRIPTION	MOUNTING	REMARKS
FACP	FIRE ALARM CONTROL PANEL	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	SILENT KNIGHT MODEL 5820XL OR FIRE-LITE MODEL MS-9600 WITH DACT-UD
ANN	FIRE ALARM ANNUNCIATOR PANEL	WALL MOUNT ON RECESSED J-BOX AT 54" AFF	KEY PAD WITH ALPHANUMERIC (MINIMUM 80 CHARACTERS) WITH RESET KEYS TO ALLOW SYSTEM RESET AND ALARM SILENCE.
NAC-PS	REMOTE POWER SUPPLIES FOR NOTIFICATION APPLIANCE CIRCUITS	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONTROLLED BY ADDRESSABLE RELAY ON SIGNALING LINE CIRCUIT.
SD	ADDRESSABLE SMOKE DETECTOR	CEILING MOUNT ON RECESSED J-BOX.	INSTALL ON CEILING IN ALL CORRIDORS, LOBBIES AND ABOVE FIRE ALARM CONTROL EQUIPMENT AS INDICATED ON PLANS.
HD	ADDRESSABLE HEAT DETECTOR	SURFACE MOUNT ON J-BOX WITHIN 24" OF FIRE SPRINKLER	TO PROVIDE POWER DISCONNECT TO ELEVATOR PRIOR TO OPERATION OF ADJACENT SPRINKLER
P	ADDRESSABLE PULL STATION	WALL MOUNT AT 48" AFF ON RECESSED J-BOX. CONDUIT SHALL BE CONCEALED IN WALL.	INSTALL AT EACH EXIT DOOR AS INDICATED ON PLANS
M	ADDRESSABLE MONITOR MODULE	MOUNT ON 4"-SQUARE J-BOX NEAR CONVENTIONAL DEVICE TO BE MONITORED.	TO FACILITATE MONITORING OF CONTACTS OF CONVENTIONAL DEVICES AS AN ADDRESSABLE POINT
C	ADDRESSABLE CONTROL MODULE	MOUNT ON 4" - SQUARE J-BOX WITHIN 3" OF DEVICE OR CIRCUIT CONTROLLED	FOR PROTECTED PREMISE FIRE SAFETY FUNCTIONS (ELEVATOR RECALL AND NAC ACTIVATION)
WFS	WATER FLOW SWITCH	FIRE SPRINKLER RISER	TO DETECT WATER FLOW IN FIRE SPRINKLER SYSTEM
VS	VALVE SUPERVISORY SWITCH	FIRE SPRINKLER CONTROL VALVES	TO MONITOR POSITION OF CONTROL VALVES.
S	FIRE ALARM STROBE	WALL MOUNT AT 80" AFF OR CEILING MOUNT ON RECESSED J-BOX	STROBE SHALL HAVE A MINIMUM CANDELA RATING OF 1500 IN INTENSITY SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW
H/S	FIRE ALARM HORN/STROBE (WALL)	WALL MOUNT AT 80" AFF ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
H/S	FIRE ALARM HORN/STROBE (CEILING)	CEILING MOUNTED ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
H	EXTERIOR FIRE ALARM HORN	WALL MOUNT AT 10'-0" AFF ON WEATHER PROOF BRK BOX	EXTERIOR ALARM. SET HORN VOLUME TO MAXIMUM LEVEL.
D	FIRE/SMOKE DAMPER	EXISTING	PROVIDE ADDRESSABLE MODULE FOR CONTROL.

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE ALARM
SYSTEM PLAN
LABORATORY
BUILDING
FP-3.3

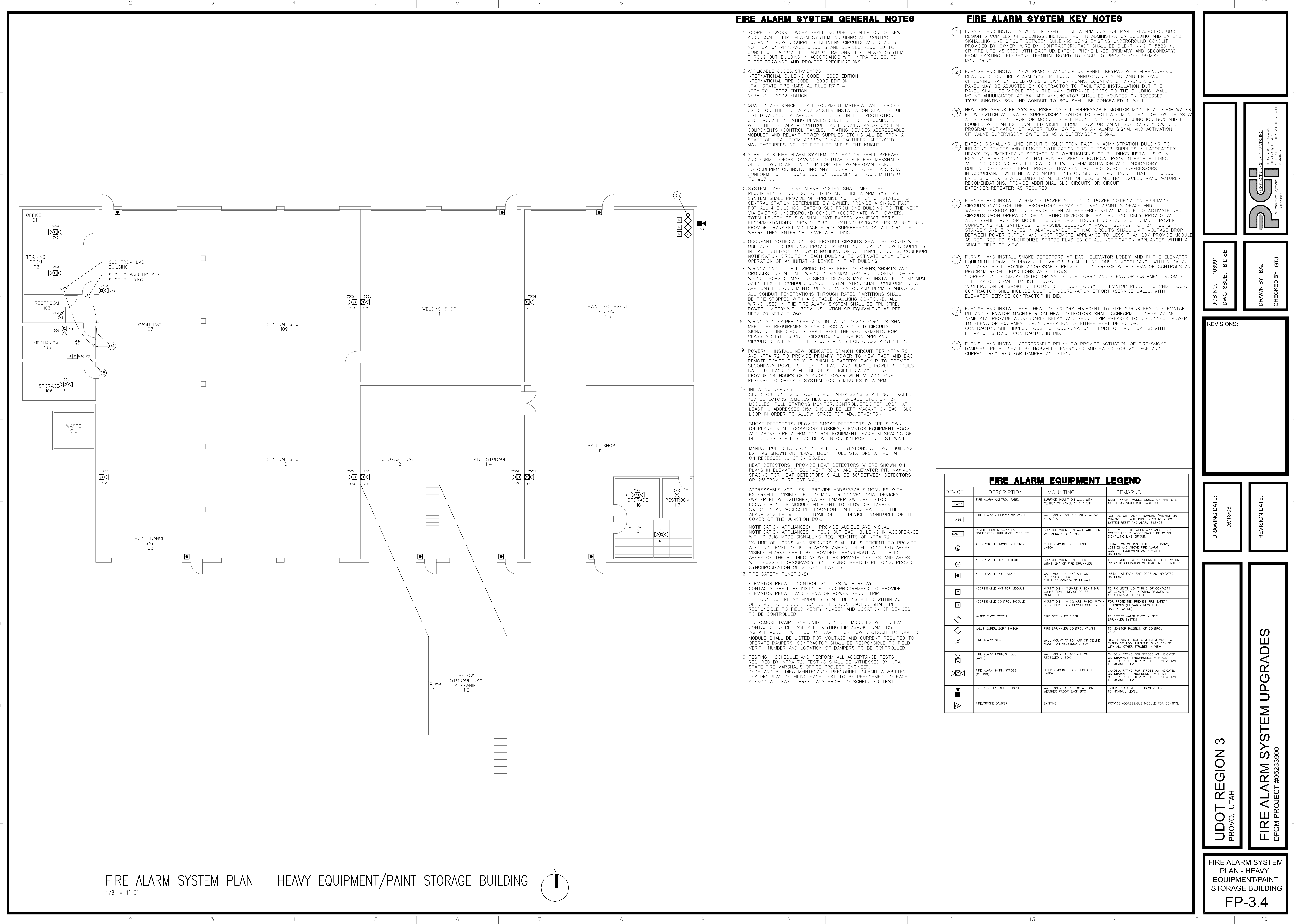
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DWG ISSUE: BID SET

DRAWN BY: BAJ
CHECKED BY: GTJ

REVISIONS:

DRAWING DATE:
06/13/06

REVISION DATE:



FIRE ALARM SYSTEM GENERAL NOTES

1. SCOPE OF WORK: WORK SHALL INCLUDE INSTALLATION OF NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING ALL CONTROL EQUIPMENT, POWER SUPPLIES, INITIATING CIRCUITS AND DEVICES, NOTIFICATION APPLIANCE CIRCUITS AND DEVICES REQUIRED TO CONSTITUTE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM THROUGHOUT BUILDING IN ACCORDANCE WITH NFPA 72, IBC, IFC THESE DRAWINGS AND PROJECT SPECIFICATIONS.
2. APPLICABLE CODES/STANDARDS: INTERNATIONAL BUILDING CODE - 2003 EDITION INTERNATIONAL FIRE CODE - 2003 EDITION UTAH STATE FIRE MARSHAL RULE R710-4 NFPA 70 - 2002 EDITION NFPA 72 - 2002 EDITION
3. QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL AND DEVICES USED FOR THE FIRE ALARM SYSTEM INSTALLATION SHALL BE UL LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). MAJOR SYSTEM COMPONENTS (CONTROL PANELS, INITIATING DEVICES, ADDRESSABLE MODULES AND RELAYS, POWER SUPPLIES, ETC.) SHALL BE FROM A STATE OF UTAH DFCM APPROVED MANUFACTURER. APPROVED MANUFACTURERS INCLUDE FIRE-LITE AND SILENT KNIGHT.
4. SUBMITTALS: FIRE ALARM SYSTEM CONTRACTOR SHALL PREPARE AND SUBMIT SHOPS DRAWINGS TO UTAH STATE FIRE MARSHAL'S OFFICE, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.
5. SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE REQUIREMENTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS. SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER. PROVIDE A SINGLE FACP FOR ALL 4 BUILDINGS. EXTEND SLC FROM ONE BUILDING TO THE NEXT VIA EXISTING UNDERGROUND CONDUIT (COORDINATE WITH OWNER). TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. PROVIDE CIRCUIT EXTENDERS/BOOSTERS AS REQUIRED. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION ON ALL CIRCUITS WHERE THEY ENTER OR LEAVE A BUILDING.
6. OCCUPANT NOTIFICATION: NOTIFICATION CIRCUITS SHALL BE ZONED WITH ONE ZONE PER BUILDING. PROVIDE REMOTE NOTIFICATION POWER SUPPLIES IN EACH BUILDING TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONFIGURE NOTIFICATION CIRCUITS IN EACH BUILDING TO ACTIVATE ONLY UPON OPERATION OF AN INITIATING DEVICE IN THAT BUILDING.
7. WIRING/CONDUIT: ALL WIRING TO BE FREE OF OPENS, SHORTS AND GROUNDS. INSTALL ALL WIRING IN MINIMUM 3/4" RIGID CONDUIT OR EMT. WIRING DROPS (5 MAX) TO SINGLE DEVICES MAY BE INSTALLED IN MINIMUM 3/4" FLEXIBLE CONDUIT. CONDUIT INSTALLATION SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF NEC (NFPA 70) AND DFCM STANDARDS. ALL CONDUIT PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND. ALL WIRING USED IN THE FIRE ALARM SYSTEM SHALL BE FPL (FIRE POWER LIMITED) WITH 300V INSULATION OR EQUIVALENT AS PER NFPA 70 ARTICLE 760.
8. WIRING STYLES (PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CIRCUITS A STYLE D CIRCUITS SIGNALING LINE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 6 OR 7 CIRCUITS. NOTIFICATION APPLIANCE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE Z.
9. POWER: INSTALL NEW DEDICATED BRANCH CIRCUIT PER NFPA 70 AND NFPA 72 TO PROVIDE PRIMARY POWER TO NEW FACP AND EACH REMOTE POWER SUPPLY. FURNISH A BATTERY BACKUP TO PROVIDE SECONDARY POWER SUPPLY TO FACP AND REMOTE POWER SUPPLIES. BATTERY BACKUP SHALL BE OF SUFFICIENT CAPACITY TO PROVIDE 24 HOURS OF STANDBY POWER WITH AN ADDITIONAL RESERVE TO OPERATE SYSTEM FOR 5 MINUTES IN ALARM.
10. INITIATING DEVICES: SLC LOOP DEVICE ADDRESSING SHALL NOT EXCEED 127 DETECTORS (SMOKES, HEATS, DUCT SMOKES, ETC.) OR 127 MODULES (PULL STATIONS, MONITOR, CONTROL, ETC.) PER LOOP. AT LEAST 19 ADDRESSES (15%) SHOULD BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS. SMOKE DETECTORS: PROVIDE SMOKE DETECTORS WHERE SHOWN ON PLANS IN ALL CORRIDORS, LOBBIES, ELEVATOR EQUIPMENT ROOM AND ABOVE FIRE ALARM CONTROL EQUIPMENT. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN OR 15' FROM FURTHEST WALL. MANUAL PULL STATIONS: INSTALL PULL STATIONS AT EACH BUILDING EXIT AS SHOWN ON PLANS. MOUNT PULL STATIONS AT 48" AFF ON RECESSED JUNCTION BOXES. HEAT DETECTORS: PROVIDE HEAT DETECTORS WHERE SHOWN ON PLANS IN ELEVATOR EQUIPMENT ROOM AND ELEVATOR PIT. MAXIMUM SPACING FOR HEAT DETECTORS SHALL BE 30' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL. ADDRESSABLE MODULES: PROVIDE ADDRESSABLE MODULES WITH EXTERNALLY VISIBLE LED TO MONITOR CONVENTIONAL DEVICES (WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, ETC.). LOCATE MONITOR MODULE ADJACENT TO FLOW OR TAMPER SWITCH IN AN ACCESSIBLE LOCATION. LABEL AS PART OF THE FIRE ALARM SYSTEM WITH THE NAME OF THE DEVICE MONITORED ON THE COVER OF THE JUNCTION BOX.
11. NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT EACH BUILDING IN ACCORDANCE WITH PUBLIC MODE SIGNALING REQUIREMENTS OF NFPA 72. VOLUME OF HORNS AND SPEAKERS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 DB ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL PUBLIC AREAS OF THE BUILDING AS WELL AS PRIVATE OFFICES AND AREAS WITH POSSIBLE OCCUPANCY BY HEARING IMPAIRED PERSONS. PROVIDE SYNCHRONIZATION OF STROBE FLASHES.
12. FIRE SAFETY FUNCTIONS: ELEVATOR RECALL: CONTROL MODULES WITH RELAY CONTACTS SHALL BE INSTALLED AND PROGRAMMED TO PROVIDE ELEVATOR RECALL AND ELEVATOR POWER SHUNT TRIP. THE CONTROL RELAY MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROLLED. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DEVICES TO BE CONTROLLED. FIRE/SMOKE DAMPERS: PROVIDE CONTROL MODULES WITH RELAY CONTACTS TO RELEASE ALL EXISTING FIRE/SMOKE DAMPERS. INSTALL MODULE WITH 36" OF DAMPER OR POWER CIRCUIT TO DAMPER MODULE SHALL BE LISTED FOR VOLTAGE AND CURRENT REQUIRED TO OPERATE DAMPERS. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DAMPERS TO BE CONTROLLED.
13. TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY UTAH STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST THREE DAYS PRIOR TO SCHEDULED TEST.

FIRE ALARM SYSTEM KEY NOTES

1. FURNISH AND INSTALL NEW ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) FOR UDOT REGION 3 COMPLEX (4 BUILDINGS). INSTALL FACP IN ADMINISTRATION BUILDING AND EXTEND SIGNALING LINE CIRCUIT BETWEEN BUILDINGS USING EXISTING UNDERGROUND CONDUIT PROVIDED BY OWNER (WIRE ADD CONTRACTOR). FACP SHALL BE SILENT KNIGHT 5820 XL OR FIRE-LITE MS-9600 WITH DACT-UD. EXTEND PHONE LINES (PRIMARY AND SECONDARY) FROM EXISTING TELEPHONE TERMINAL BOARD TO FACP TO PROVIDE OFF-PREMISE MONITORING.
2. FURNISH AND INSTALL NEW REMOTE ANNUNCIATOR PANEL (KEYPAD) WITH ALPHANUMERIC READ OUT FOR FIRE ALARM SYSTEM. LOCATE ANNUNCIATOR NEAR MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SHOWN ON PLANS. LOCATION OF ANNUNCIATOR PANEL MAY BE ADJUSTED BY CONTRACTOR TO FACILITATE INSTALLATION BUT THE PANEL SHALL BE VISIBLE FROM THE MAIN ENTRANCE DOORS TO THE BUILDING. WALL MOUNT ANNUNCIATOR AT 54" AFF. ANNUNCIATOR SHALL BE MOUNTED ON RECESSED TYPE JUNCTION BOX AND CONDUIT TO BOX SHALL BE CONCEALED IN WALL.
3. NEW FIRE SPRINKLER SYSTEM RISER. INSTALL ADDRESSABLE MONITOR MODULE AT EACH WATER FLOW SWITCH AND VALVE SUPERVISORY SWITCH TO FACILITATE MONITORING OF SWITCH AS AN ADDRESSABLE POINT. MONITOR MODULE SHALL MOUNT IN 4 - SQUARE JUNCTION BOX AND BE EQUIPPED WITH AN EXTERNAL LED VISIBLE FROM FLOW OR VALVE SUPERVISORY SWITCH. PROGRAM ACTIVATION OF WATER FLOW SWITCH AS AN ALARM SIGNAL AND ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL.
4. EXTEND SIGNALING LINE CIRCUIT(S) (SLC) FROM FACP IN ADMINISTRATION BUILDING TO INITIATING DEVICES AND REMOTE NOTIFICATION CIRCUIT POWER SUPPLIES IN LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. INSTALL SLC IN EXISTING BURIED CONDUITS THAT RUN BETWEEN ELECTRICAL ROOM IN EACH BUILDING AND UNDERGROUND VAULT LOCATED BETWEEN ADMINISTRATION AND LABORATORY BUILDING (SEE SHEET FP-11). PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSORS IN ACCORDANCE WITH NFPA 70 ARTICLE 285 ON SLC AT EACH POINT THAT THE CIRCUIT ENTERS OR EXITS A BUILDING. TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS. PROVIDE ADDITIONAL SLC CIRCUITS OR CIRCUIT EXTENDER/REPEATER AS REQUIRED.
5. FURNISH AND INSTALL A REMOTE POWER SUPPLY TO POWER NOTIFICATION APPLIANCE CIRCUITS (NAC) FOR THE LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. PROVIDE AN ADDRESSABLE RELAY MODULE TO ACTIVATE NAC CIRCUITS UPON OPERATION OF INITIATING DEVICES IN THAT BUILDING ONLY. PROVIDE AN ADDRESSABLE MONITOR MODULE TO SUPERVISE TROUBLE CONTACTS OF REMOTE POWER SUPPLY. INSTALL BATTERIES TO PROVIDE SECONDARY POWER SUPPLY FOR 24 HOURS IN STANDBY AND 5 MINUTES IN ALARM. LAYOUT OF NAC CIRCUITS SHALL LIMIT VOLTAGE DROP BETWEEN POWER SUPPLY AND MOST REMOTE APPLIANCE TO LESS THAN 20%. PROVIDE MODULE AS REQUIRED TO SYNCHRONIZE STROBE FLASHES OF ALL NOTIFICATION APPLIANCES WITHIN A SINGLE FIELD OF VIEW.
6. FURNISH AND INSTALL SMOKE DETECTORS AT EACH ELEVATOR LOBBY AND IN THE ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAYS TO INTERFACE WITH ELEVATOR CONTROLS AND PROGRAM RECALL FUNCTIONS AS FOLLOWS: 1. OPERATION OF SMOKE DETECTOR 2ND FLOOR LOBBY AND ELEVATOR EQUIPMENT ROOM - ELEVATOR RECALL TO 1ST FLOOR. 2. OPERATION OF SMOKE DETECTOR 1ST FLOOR LOBBY - ELEVATOR RECALL TO 2ND FLOOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
7. FURNISH AND INSTALL HEAT DETECTORS ADJACENT TO FIRE SPRINKLERS IN ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAY AND SHUNT TRIP BREAKER TO DISCONNECT POWER TO ELEVATOR EQUIPMENT UPON OPERATION OF EITHER HEAT DETECTOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
8. FURNISH AND INSTALL ADDRESSABLE RELAY TO PROVIDE ACTUATION OF FIRE/SMOKE DAMPERS. RELAY SHALL BE NORMALLY ENERGIZED AND RATED FOR VOLTAGE AND CURRENT REQUIRED FOR DAMPER ACTUATION.

FIRE ALARM EQUIPMENT LEGEND

DEVICE	DESCRIPTION	MOUNTING	REMARKS
FACP	FIRE ALARM CONTROL PANEL	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF	SILENT KNIGHT MODEL 5820XL OR FIRE-LITE MODEL MS-9600 WITH DACT-UD
ANN	FIRE ALARM ANNUNCIATOR PANEL	WALL MOUNT ON RECESSED J-BOX AT 54" AFF	KEY PAD WITH ALPHANUMERIC (MINIMUM 80 CHARACTERS WITH NUMERICS TO ALLOW SYSTEM RESET AND ALARM SILENCE)
NAC-PS	REMOTE POWER SUPPLIES FOR NOTIFICATION APPLIANCE CIRCUITS	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF	TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONTROLLED BY ADDRESSABLE RELAY ON SIGNALING LINE CIRCUIT.
⊙	ADDRESSABLE SMOKE DETECTOR	CEILING MOUNT ON RECESSED J-BOX	INSTALL ON CEILING IN ALL CORRIDORS, LOBBIES AND ABOVE FIRE ALARM CONTROL EQUIPMENT AS INDICATED ON PLANS
⊕	ADDRESSABLE HEAT DETECTOR	SURFACE MOUNT ON J-BOX WITHIN 24" OF FIRE SPRINKLER	TO PROVIDE POWER DISCONNECT TO ELEVATOR PRIOR TO OPERATION OF ADJACENT SPRINKLER
■	ADDRESSABLE PULL STATION	WALL MOUNT AT 48" AFF ON RECESSED J-BOX. CONDUIT SHALL BE CONCEALED IN WALL.	INSTALL AT EACH EXIT DOOR AS INDICATED ON PLANS
M	ADDRESSABLE MONITOR MODULE	MOUNT ON 4-SQUARE J-BOX NEAR CONVENTIONAL DEVICE TO BE MONITORED	TO FACILITATE MONITORING OF CONTACTS OF CONVENTIONAL INITIATING DEVICES AS AN ADDRESSABLE POINT
S	ADDRESSABLE CONTROL MODULE	MOUNT ON 4 - SQUARE J-BOX WITHIN 3' OF DEVICE OR CIRCUIT CONTROLLED	FOR PROTECTED PREMISE FIRE SAFETY FUNCTIONS (ELEVATOR RECALL AND NAC ACTIVATION)
⬮	WATER FLOW SWITCH	FIRE SPRINKLER RISER	TO DETECT WATER FLOW IN FIRE SPRINKLER SYSTEM
⬮	VALVE SUPERVISORY SWITCH	FIRE SPRINKLER CONTROL VALVES	TO MONITOR POSITION OF CONTROL VALVES
⊗	FIRE ALARM STROBE	WALL MOUNT AT 80" AFF OR CEILING MOUNT ON RECESSED J-BOX	STROBE SHALL HAVE A MINIMUM CANDELA RATING OF 150cd INTENSITY SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW
⬮	FIRE ALARM HORN/STROBE (WALL)	WALL MOUNT AT 80" AFF ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⬮	FIRE ALARM HORN/STROBE (CEILING)	CEILING MOUNTED ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⬮	EXTERIOR FIRE ALARM HORN	WALL MOUNT AT 10'-0" AFF ON WEATHER PROOF BACK BOX	EXTERIOR ALARM. SET HORN VOLUME TO MAXIMUM LEVEL.
⬮	FIRE/SMOKE DAMPER	EXISTING	PROVIDE ADDRESSABLE MODULE FOR CONTROL.

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM PLAN - HEAVY EQUIPMENT/PAINT STORAGE BUILDING

FP-3.4

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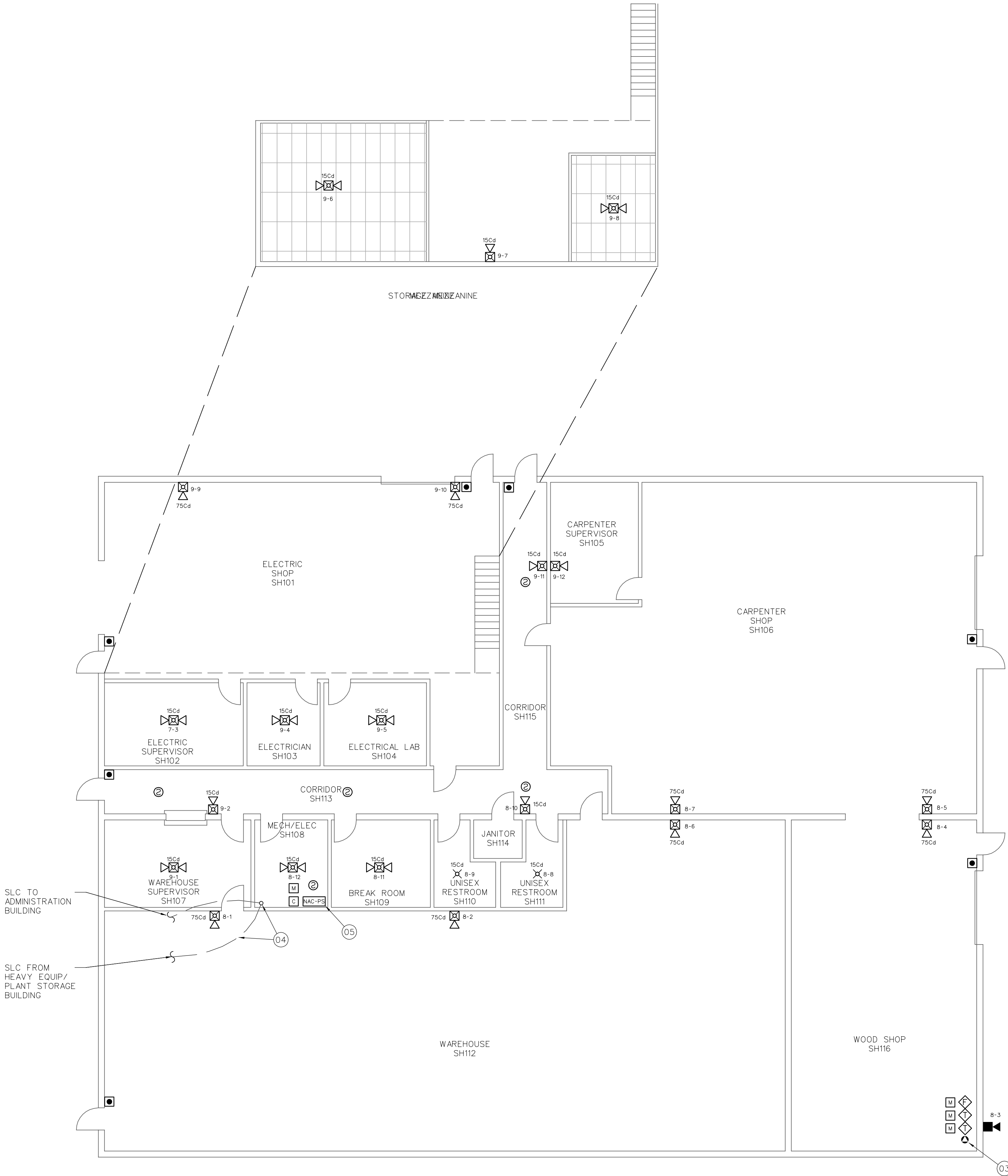
FIRE ALARM SYSTEM UPGRADES

DFCM PROJECT #05233900

PROTECTOR CONSULTING INC.

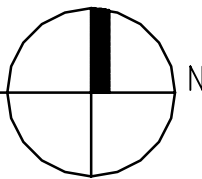
180 South 600 East Salt Lake City, UT 84143
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FIRE ALARM SYSTEM PLAN – WAREHOUSE/SHOP BUILDING

1/8" = 1'-0"



FIRE ALARM SYSTEM GENERAL NOTES

- SCOPE OF WORK: WORK SHALL INCLUDE INSTALLATION OF NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING ALL CONTROL EQUIPMENT, POWER SUPPLIES, INITIATING CIRCUITS AND DEVICES, NOTIFICATION APPLIANCE CIRCUITS AND DEVICES REQUIRED TO CONSTITUTE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM THROUGHOUT BUILDING IN ACCORDANCE WITH NFPA 72, IBC, IFC THESE DRAWINGS AND PROJECT SPECIFICATIONS.
- APPLICABLE CODES/STANDARDS:
INTERNATIONAL BUILDING CODE - 2003 EDITION
INTERNATIONAL FIRE CODE - 2003 EDITION
UTAH STATE FIRE MARSHAL RULE R710-4
NFPA 70 - 2002 EDITION
NFPA 72 - 2002 EDITION
- QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL, AND DEVICES LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). MAJOR SYSTEM COMPONENTS (CONTROL PANELS, INITIATING DEVICES, ADDRESSABLE MODULES, AND RELAYS, POWER SUPPLIES, ETC.) SHALL BE FROM A STATE OF UTAH DFCM APPROVED MANUFACTURER. APPROVED MANUFACTURERS INCLUDE FIRE-LITE AND SILENT KNIGHT.
- SUBMITTALS: FIRE ALARM SYSTEM CONTRACTOR SHALL PREPARE AND SUBMIT SHOPS DRAWINGS TO UTAH STATE FIRE MARSHAL'S OFFICE, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.
- SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE REQUIREMENTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS. SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER. PROVIDE A SINGLE FACP FOR ALL 4 BUILDINGS. EXTEND SLC FROM ONE BUILDING TO THE NEXT VIA EXISTING UNDERGROUND CONDUIT (COORDINATE WITH OWNER). TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. PROVIDE CIRCUIT EXTENDERS/BOOSTERS AS REQUIRED. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION ON ALL CIRCUITS WHERE THEY ENTER OR LEAVE A BUILDING.
- OCCUPANT NOTIFICATION: NOTIFICATION CIRCUITS SHALL BE ZONED WITH ONE ZONE PER BUILDING. PROVIDE REMOTE NOTIFICATION POWER SUPPLIES IN EACH BUILDING TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONFIGURE NOTIFICATION CIRCUITS IN EACH BUILDING TO ACTIVATE ONLY UPON OPERATION OF AN INITIATING DEVICE IN THAT BUILDING.
- WIRING/CONDUIT: ALL WIRING TO BE FREE OF OPENS, SHORTS AND GROUNDS. INSTALL ALL WIRING IN MINIMUM 3/4" RIGID CONDUIT OR EMT. WIRING DROPS (5 MAX) TO SINGLE DEVICES MAY BE INSTALLED IN MINIMUM 3/4" FLEXIBLE CONDUIT. CONDUIT INSTALLATION SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF NEC (NFPA 70) AND DFCM STANDARDS. ALL CONDUIT PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND. ALL WIRING USED IN THE FIRE ALARM SYSTEM SHALL BE FPL (FIRE POWER LIMITED) WITH 300V INSULATION OR EQUIVALENT AS PER NFPA 70 ARTICLE 760.
- WIRING STYLES (PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE D CIRCUITS. SIGNALING LINE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 6 OR 7 CIRCUITS. NOTIFICATION APPLIANCE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE Z.
- POWER: INSTALL NEW DEDICATED BRANCH CIRCUIT PER NFPA 70 AND NFPA 72 TO PROVIDE PRIMARY POWER TO NEW FACP AND EACH REMOTE POWER SUPPLY. FURNISH A BATTERY BACKUP TO PROVIDE SECONDARY POWER SUPPLY TO FACP AND REMOTE POWER SUPPLIES. BATTERY BACKUP SHALL BE OF SUFFICIENT CAPACITY TO PROVIDE 24 HOURS OF STANDBY POWER WITH AN ADDITIONAL RESERVE TO OPERATE SYSTEM FOR 5 MINUTES IN ALARM.
- INITIATING DEVICES:
SLC CIRCUITS: SLC LOOP DEVICE ADDRESSING SHALL NOT EXCEED 127 DETECTORS (SMOKES, HEATS, DUCT SMOKES, ETC.) OR 127 MODULES (PULL STATIONS, MONITOR, CONTROL, ETC.) PER LOOP. AT LEAST 19 ADDRESSES (15%) SHOULD BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS.
SMOKE DETECTORS: PROVIDE SMOKE DETECTORS WHERE SHOWN ON PLANS IN ALL CORRIDORS, LOBBIES, ELEVATOR EQUIPMENT ROOM AND ABOVE FIRE ALARM CONTROL EQUIPMENT. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN OR 15' FROM FURTHEST WALL.
MANUAL PULL STATIONS: INSTALL PULL STATIONS AT EACH BUILDING EXIT AS SHOWN ON PLANS. MOUNT PULL STATIONS AT 48" AFF ON RECESSED JUNCTION BOXES.
HEAT DETECTORS: PROVIDE HEAT DETECTORS WHERE SHOWN ON PLANS IN ELEVATOR EQUIPMENT ROOM AND ELEVATOR PIT. MAXIMUM SPACING FOR HEAT DETECTORS SHALL BE 50' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL.
ADDRESSABLE MODULES: PROVIDE ADDRESSABLE MODULES WITH EXTERNALLY VISIBLE LED TO MONITOR CONVENTIONAL DEVICES (WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, ETC.). LOCATE MONITOR MODULE ADJACENT TO FLOW OR TAMPER SWITCH IN AN ACCESSIBLE LOCATION. LABEL AS PART OF THE FIRE ALARM SYSTEM WITH THE NAME OF THE DEVICE MONITORED ON THE COVER OF THE JUNCTION BOX.
- NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT EACH BUILDING IN ACCORDANCE WITH PUBLIC WORK SIGNALLING REQUIREMENTS OF NFPA 72. VOLUME OF HORNS AND SPEAKERS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 DB ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL PUBLIC AREAS OF THE BUILDING AS WELL AS PRIVATE OFFICES AND AREAS WITH POSSIBLE OCCUPANCY BY HEARING IMPAIRED PERSONS. PROVIDE SYNCHRONIZATION OF STROBE FLASHES.
- FIRE SAFETY FUNCTIONS:
ELEVATOR RECALL: CONTROL MODULES WITH RELAY CONTACTS SHALL BE INSTALLED AND PROGRAMMED TO PROVIDE ELEVATOR RECALL AND ELEVATOR POWER SHUNT TRIP. THE CONTROL RELAY MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROL. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DEVICES TO BE CONTROLLED.
FIRE/SMOKE DAMPERS: PROVIDE CONTROL MODULES WITH RELAY CONTACTS TO RELEASE ALL EXISTING FIRE/SMOKE DAMPERS. INSTALL MODULE WITH 36" OF DAMPER OR POWER CIRCUIT TO DAMPER MODULE SHALL BE LISTED FOR VOLTAGE AND CURRENT REQUIRED TO OPERATE DAMPERS. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DAMPERS TO BE CONTROLLED.
- TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY UTAH STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST THREE DAYS PRIOR TO SCHEDULED TEST.

FIRE ALARM SYSTEM KEY NOTES

- FURNISH AND INSTALL NEW ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) FOR UDOT REGION 3 COMPLEX (4 BUILDINGS). INSTALL FACP IN ADMINISTRATION BUILDING AND EXTEND SIGNALING LINE CIRCUIT BETWEEN BUILDINGS USING EXISTING UNDERGROUND CONDUIT PROVIDED BY OWNER (WIRE BY CONTRACTOR). FACP SHALL BE SILENT KNIGHT 5820 XL OR FIRE-LITE MS-9600 WITH DACT-UD. EXTEND PHONE LINES (PRIMARY AND SECONDARY) FROM EXISTING TELEPHONE TERMINAL BOARD TO FACP TO PROVIDE OFF-PREMISE MONITORING.
- FURNISH AND INSTALL NEW REMOTE ANNUNCIATOR PANEL (KEYPAD) WITH ALPHANUMERIC READ OUT FOR FIRE ALARM SYSTEM. LOCATE ANNUNCIATOR NEAR MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SHOWN ON PLANS. LOCATION OF ANNUNCIATOR PANEL MAY BE ADJUSTED BY CONTRACTOR TO FACILITATE INSTALLATION BUT THE PANEL SHALL BE VISIBLE FROM THE MAIN ENTRANCE DOORS TO THE BUILDING. WALL MOUNT ANNUNCIATOR AT 54" AFF. ANNUNCIATOR SHALL BE MOUNTED ON RECESSED TYPE JUNCTION BOX AND CONDUIT TO BOX SHALL BE CONCEALED IN WALL.
- NEW FIRE SPRINKLER SYSTEM RISER. INSTALL ADDRESSABLE MONITOR MODULE AT EACH WATER FLOW SWITCH AND VALVE SUPERVISORY SWITCH TO FACILITATE MONITORING OF SWITCH AS AN ADDRESSABLE POINT. MONITOR MODULE SHALL MOUNT IN 4" SQUARE JUNCTION BOX AND BE EQUIPPED WITH AN EXTERNAL LED VISIBLE FROM FLOW OR VALVE SUPERVISORY SWITCH. PROGRAM ACTIVATION OF WATER FLOW SWITCH AS AN ALARM SIGNAL AND ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL.
- EXTEND SIGNALLING LINE CIRCUIT(S) (SLC) FROM FACP IN ADMINISTRATION BUILDING TO INITIATING DEVICES AND REMOTE NOTIFICATION CIRCUIT POWER SUPPLIES IN LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. INSTALL SLC IN EXISTING BURIED CONDUITS THAT RUN BETWEEN ELECTRICAL ROOM IN EACH BUILDING AND UNDERGROUND VAULT LOCATED BETWEEN ADMINISTRATION AND LABORATORY BUILDING (SEE SHEET FP-11). PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSORS IN ACCORDANCE WITH NFPA 70 ARTICLE 285 ON SLC AT EACH POINT THAT THE CIRCUIT ENTERS OR EXITS A BUILDING. TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS. PROVIDE ADDITIONAL SLC CIRCUITS OR CIRCUIT EXTENDER/REPEATER AS REQUIRED.
- FURNISH AND INSTALL A REMOTE POWER SUPPLY TO POWER NOTIFICATION APPLIANCE CIRCUITS (NAC) FOR THE LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. PROVIDE AN ADDRESSABLE RELAY MODULE TO ACTIVATE NAC CIRCUITS UPON OPERATION OF INITIATING DEVICES IN THAT BUILDING ONLY. PROVIDE AN ADDRESSABLE MONITOR MODULE TO SUPERVISE TROUBLE CONTACTS OF REMOTE POWER SUPPLY. INSTALL BATTERIES TO PROVIDE SECONDARY POWER SUPPLY FOR 24 HOURS IN STANDBY AND 5 MINUTES IN ALARM. LAYOUT OF NAC CIRCUITS SHALL LIMIT VOLTAGE DROP BETWEEN POWER SUPPLY AND MOST REMOTE APPLIANCE TO LESS THAN 20%. PROVIDE MODULE AS REQUIRED TO SYNCHRONIZE STROBE FLASHES OF ALL NOTIFICATION APPLIANCES WITHIN A SINGLE FIELD OF VIEW.
- FURNISH AND INSTALL SMOKE DETECTORS AT EACH ELEVATOR LOBBY AND IN THE ELEVATOR EQUIPMENT ROOM TO PROVIDE ELEVATOR RECALL FUNCTIONS IN ACCORDANCE WITH NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAYS TO INTERFACE WITH ELEVATOR CONTROLS AND PROGRAM RECALL FUNCTIONS AS FOLLOWS:
1. OPERATION OF SMOKE DETECTOR 2ND FLOOR LOBBY AND ELEVATOR EQUIPMENT ROOM - ELEVATOR RECALL TO 1ST FLOOR.
2. OPERATION OF SMOKE DETECTOR 1ST FLOOR LOBBY - ELEVATOR RECALL TO 2ND FLOOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL HEAT DETECTORS ADJACENT TO FIRE SPRINKLERS IN ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAY AND SHUNT TRIP BREAKER TO DISCONNECT POWER TO ELEVATOR EQUIPMENT UPON OPERATION OF EITHER HEAT DETECTOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
- FURNISH AND INSTALL ADDRESSABLE RELAY TO PROVIDE ACTUATION OF FIRE/SMOKE DAMPERS. RELAY SHALL BE NORMALLY ENERGIZED AND RATED FOR VOLTAGE AND CURRENT REQUIRED FOR DAMPER ACTUATION.

FIRE ALARM EQUIPMENT LEGEND

DEVICE	DESCRIPTION	MOUNTING	REMARKS
FACP	FIRE ALARM CONTROL PANEL	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	SILENT KNIGHT MODEL 5820XL OR FIRE-LITE MODEL MS-9600 WITH DACT-UD
ANN	FIRE ALARM ANNUNCIATOR PANEL	WALL MOUNT ON RECESSED J-BOX AT 54" AFF.	KEY PAD WITH ALPHA-NUMERIC (MINIMUM 80 CHARACTERS) WITH INPUT KEYS TO ALLOW SYSTEM RESET AND ALARM SILENCE.
RPS	REMOTE POWER SUPPLIES FOR NOTIFICATION APPLIANCE CIRCUITS	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONTROLLED BY ADDRESSABLE RELAY ON SIGNALING LINE CIRCUIT.
750c	ADDRESSABLE SMOKE DETECTOR	CEILING MOUNT ON RECESSED J-BOX.	INSTALL ON CEILING IN ALL CORRIDORS, LOBBIES AND ABOVE FIRE ALARM CONTROL EQUIPMENT AS INDICATED ON PLANS.
750d	ADDRESSABLE HEAT DETECTOR	SURFACE MOUNT ON J-BOX WITHIN 24" OF FIRE SPRINKLER.	TO PROVIDE POWER DISCONNECT TO ELEVATOR PRIOR TO OPERATION OF ADJACENT SPRINKLER.
750e	ADDRESSABLE PULL STATION	WALL MOUNT AT 48" AFF. ON RECESSED J-BOX. CONDUIT SHALL BE CONCEALED IN WALL.	INSTALL AT EACH EXIT DOOR AS INDICATED ON PLANS.
M	ADDRESSABLE MONITOR MODULE	MOUNT ON 4"-SQUARE J-BOX NEAR CONVENTIONAL DEVICE TO BE MONITORED.	TO FACILITATE MONITORING OF CONTACTS OF CONVENTIONAL INITIATING DEVICES AS AN ADDRESSABLE POINT.
C	ADDRESSABLE CONTROL MODULE	MOUNT ON 4" - SQUARE J-BOX WITHIN 3' OF DEVICE OR CIRCUIT CONTROLLED.	FOR PROTECTED PREMISE FIRE SAFETY FUNCTIONS (ELEVATOR RECALL AND NAC ACTIVATION)
750f	WATER FLOW SWITCH	FIRE SPRINKLER RISER	TO DETECT WATER FLOW IN FIRE SPRINKLER SYSTEM.
750g	VALVE SUPERVISORY SWITCH	FIRE SPRINKLER CONTROL VALVES	TO MONITOR POSITION OF CONTROL VALVES.
750h	FIRE ALARM STROBE	WALL MOUNT AT 80" AFF OR CEILING MOUNT ON RECESSED J-BOX.	STROBE SHALL HAVE A MINIMUM CANDELA RATING OF 150cd INTENSITY SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW.
750i	FIRE ALARM HORN/STROBE (WALL)	WALL MOUNT AT 80" AFF ON RECESSED J-BOX.	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
750j	FIRE ALARM HORN/STROBE (CEILING)	CEILING MOUNTED ON RECESSED J-BOX.	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
750k	EXTERIOR FIRE ALARM HORN	WALL MOUNT AT 10'-0" AFF ON WEATHER PROOF BACK BOX.	EXTERIOR ALARM. SET HORN VOLUME TO MAXIMUM LEVEL.
750l	FIRE/SMOKE DAMPER	EXISTING	PROVIDE ADDRESSABLE MODULE FOR CONTROL.

UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05233900

FIRE ALARM SYSTEM
PLAN - HEAVY
EQUIPMENT/PAINT
STORAGE BUILDING
FP-3.5

FIRE ALARM SYSTEM GENERAL NOTES

1. SCOPE OF WORK: WORK SHALL INCLUDE INSTALLATION OF NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING ALL CONTROL EQUIPMENT, POWER SUPPLIES, INITIATING CIRCUITS AND DEVICES, NOTIFICATION APPLIANCE CIRCUITS AND DEVICES REQUIRED TO CONSTITUTE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM THROUGHOUT BUILDING IN ACCORDANCE WITH NFPA 72, IBC, IFC THESE DRAWINGS AND PROJECT SPECIFICATIONS.
2. APPLICABLE CODES/STANDARDS:
INTERNATIONAL BUILDING CODE - 2003 EDITION
INTERNATIONAL FIRE CODE - 2003 EDITION
UTAH STATE FIRE MARSHAL RULE R710-4
NFPA 70 - 2002 EDITION
NFPA 72 - 2002 EDITION
3. QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL, AND DEVICES LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). MAJOR SYSTEM COMPONENTS (CONTROL PANELS, INITIATING DEVICES, ADDRESSABLE MODULES, AND RELAYS, POWER SUPPLIES, ETC.) SHALL BE FROM A STATE OF UTAH DFCM APPROVED MANUFACTURER. APPROVED MANUFACTURERS INCLUDE FIRE-LITE AND SILENT KNIGHT.
4. SUBMITTALS: FIRE ALARM SYSTEM CONTRACTOR SHALL PREPARE AND SUBMIT SHOPS DRAWINGS TO UTAH STATE FIRE MARSHAL'S OFFICE, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.
5. SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE REQUIREMENTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS. SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER. PROVIDE A SINGLE FACP FOR ALL 4 BUILDINGS. EXTEND SLC FROM ONE BUILDING TO THE NEXT VIA EXISTING UNDERGROUND CONDUIT (COORDINATE WITH OWNER). TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. PROVIDE CIRCUIT EXTENDERS/BOOSTERS AS REQUIRED. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION ON ALL CIRCUITS WHERE THEY ENTER OR LEAVE A BUILDING.
6. OCCUPANT NOTIFICATION: NOTIFICATION CIRCUITS SHALL BE ZONED WITH ONE ZONE PER BUILDING. PROVIDE REMOTE NOTIFICATION POWER SUPPLIES IN EACH BUILDING TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONFIGURE NOTIFICATION CIRCUITS IN EACH BUILDING TO ACTIVATE ONLY UPON OPERATION OF AN INITIATING DEVICE IN THAT BUILDING.
7. WIRING/CONDUIT: ALL WIRING TO BE FREE OF OPENS, SHORTS AND GROUNDS. INSTALL ALL WIRING IN MINIMUM 3/4" RIGID CONDUIT OR EMT. WIRING DROPS (5 MAX) TO SINGLE DEVICES MAY BE INSTALLED IN MINIMUM 3/4" FLEXIBLE CONDUIT. CONDUIT INSTALLATION SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF NEC (NFPA 70) AND DFCM STANDARDS. ALL CONDUIT PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND. ALL WIRING USED IN THE FIRE ALARM SYSTEM SHALL BE FPL (FIRE POWER LIMITED) WITH 300V INSULATION OR EQUIVALENT AS PER NFPA 70 ARTICLE 760.
8. WIRING STYLES (PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 1 OR CLASS B STYLE 2. SIGNALING LINE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 6 OR 7 CIRCUITS. NOTIFICATION APPLIANCE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE Z.
9. POWER: INSTALL NEW DEDICATED BRANCH CIRCUIT PER NFPA 70 AND NFPA 72 TO PROVIDE PRIMARY POWER TO NEW FACP AND EACH REMOTE POWER SUPPLY. FURNISH A BATTERY BACKUP TO PROVIDE SECONDARY POWER SUPPLY TO FACP AND REMOTE POWER SUPPLIES. BATTERY BACKUP SHALL BE OF SUFFICIENT CAPACITY TO PROVIDE 24 HOURS OF STANDBY POWER WITH AN ADDITIONAL RESERVE TO OPERATE SYSTEM FOR 5 MINUTES IN ALARM.
10. INITIATING DEVICES:
SLC CIRCUITS: SLC LOOP DEVICE ADDRESSING SHALL NOT EXCEED 127 DETECTORS (SMOKES, HEATS, DUCT SMOKES, ETC.) OR 127 MODULES (PULL STATIONS, MONITOR, CONTROL, ETC.) PER LOOP. AT LEAST 19 ADDRESSES (15%) SHOULD BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS./
SMOKE DETECTORS: PROVIDE SMOKE DETECTORS WHERE SHOWN ON PLANS IN ALL CORRIDORS, LOBBIES, ELEVATOR EQUIPMENT ROOM AND ABOVE FIRE ALARM CONTROL EQUIPMENT. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN OR 15' FROM FURTHEST WALL.
MANUAL PULL STATIONS: INSTALL PULL STATIONS AT EACH BUILDING EXIT AS SHOWN ON PLANS. MOUNT PULL STATIONS AT 48" AFF ON RECESSED JUNCTION BOXES.
HEAT DETECTORS: PROVIDE HEAT DETECTORS WHERE SHOWN ON PLANS IN ELEVATOR EQUIPMENT ROOM AND ELEVATOR PIT. MAXIMUM SPACING FOR HEAT DETECTORS SHALL BE 50' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL.
ADDRESSABLE MODULES: PROVIDE ADDRESSABLE MODULES WITH EXTERNALLY VISIBLE LED TO MONITOR CONVENTIONAL DEVICES (WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, ETC.). LOCATE MONITOR MODULE ADJACENT TO FLOW OR TAMPER SWITCH IN AN ACCESSIBLE LOCATION. LABEL AS PART OF THE FIRE ALARM SYSTEM WITH THE NAME OF THE DEVICE MONITORED ON THE COVER OF THE JUNCTION BOX.
NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT EACH BUILDING IN ACCORDANCE WITH PUBLIC MODE SIGNALLING REQUIREMENTS OF NFPA 72. VOLUME OF HORNS AND SPEAKERS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 DB ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL PUBLIC AREAS OF THE BUILDING AS WELL AS PRIVATE OFFICES AND AREAS WITH POSSIBLE OCCUPANCY BY HEARING IMPAIRED PERSONS. PROVIDE SYNCHRONIZATION OF STROBE FLASHES.
FIRE SAFETY FUNCTIONS:
ELEVATOR RECALL: CONTROL MODULES WITH RELAY CONTACTS SHALL BE INSTALLED AND PROGRAMMED TO PROVIDE ELEVATOR RECALL AND ELEVATOR POWER SHUNT TRIP. THE CONTROL RELAY MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROL ED. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DEVICES TO BE CONTROLLED.
FIRE/SMOKE DAMPERS: PROVIDE CONTROL MODULES WITH RELAY CONTACTS TO RELEASE ALL EXISTING FIRE/SMOKE DAMPERS. INSTALL MODULE WITH 36" OF DAMPER OR POWER CIRCUIT TO DAMPER MODULE SHALL BE LISTED FOR VOLTAGE AND CURRENT REQUIRED TO OPERATE DAMPERS. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY NUMBER AND LOCATION OF DAMPERS TO BE CONTROLLED.
11. TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY UTAH STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST THREE DAYS PRIOR TO SCHEDULED TEST.

FIRE ALARM SYSTEM KEY NOTES

1. FURNISH AND INSTALL NEW ADDRESSABLE FIRE ALARM CONTROL PANEL (FACP) FOR UDOT REGION 3 COMPLEX (4 BUILDINGS). INSTALL FACP IN ADMINISTRATION BUILDING AND EXTEND SIGNALING LINE CIRCUIT BETWEEN BUILDINGS USING EXISTING UNDERGROUND CONDUIT PROVIDED BY OWNER (WIRE BY CONTRACTOR). FACP SHALL BE SILENT KNIGHT 5820 XL OR FIRE-LITE MS-9600 WITH DACT-UD. EXTEND PHONE LINES (PRIMARY AND SECONDARY) FROM EXISTING TELEPHONE TERMINAL BOARD TO FACP TO PROVIDE OFF-PREMISE MONITORING.
2. FURNISH AND INSTALL NEW REMOTE ANNUNCIATOR PANEL (KEYPAD) WITH ALPHANUMERIC KEYPAD FOR FIRE ALARM SYSTEM. LOCATE ANNUNCIATOR NEAR MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SHOWN ON PLANS. LOCATION OF ANNUNCIATOR PANEL MAY BE ADJUSTED BY CONTRACTOR TO FACILITATE INSTALLATION BUT THE PANEL SHALL BE VISIBLE FROM THE MAIN ENTRANCE DOORS TO THE BUILDING. WALL MOUNT ANNUNCIATOR AT 54" AFF. ANNUNCIATOR SHALL BE MOUNTED ON RECESSED TYPE JUNCTION BOX AND CONDUIT TO BOX SHALL BE CONCEALED IN WALL.
3. NEW FIRE SPRINKLER SYSTEM RISER. INSTALL ADDRESSABLE MONITOR MODULE AT EACH WATER FLOW SWITCH AND VALVE SUPERVISORY SWITCH TO FACILITATE MONITORING OF SWITCH AS AN ADDRESSABLE POINT. MONITOR MODULE SHALL MOUNT IN 4" SQUARE JUNCTION BOX AND BE EQUIPPED WITH AN EXTERNAL LED VISIBLE FROM FLOW OR VALVE SUPERVISORY SWITCH. PROGRAM ACTIVATION OF WATER FLOW SWITCH AS AN ALARM SIGNAL AND ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL.
4. EXTEND SIGNALLING LINE CIRCUIT(S) (SLC) FROM FACP IN ADMINISTRATION BUILDING TO INITIATING DEVICES AND REMOTE NOTIFICATION CIRCUIT POWER SUPPLIES IN LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. INSTALL SLC IN EXISTING BURIED CONDUITS THAT RUN BETWEEN ELECTRICAL ROOM IN EACH BUILDING AND UNDERGROUND VAULT LOCATED BETWEEN ADMINISTRATION AND LABORATORY BUILDING (SEE SHEET FP-11). PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSORS IN ACCORDANCE WITH NFPA 70 ARTICLE 285 ON SLC AT EACH POINT THAT THE CIRCUIT ENTERS OR EXITS A BUILDING. TOTAL LENGTH OF SLC SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS. PROVIDE ADDITIONAL SLC CIRCUITS OR CIRCUIT EXTENDER/REPEATER AS REQUIRED.
5. FURNISH AND INSTALL A REMOTE POWER SUPPLY TO POWER NOTIFICATION APPLIANCE CIRCUITS (NAC) FOR THE LABORATORY, HEAVY EQUIPMENT/PAINT STORAGE AND WAREHOUSE/SHOP BUILDINGS. PROVIDE AN ADDRESSABLE RELAY MODULE TO ACTIVATE NAC CIRCUITS UPON OPERATION OF INITIATING DEVICES IN THAT BUILDING ONLY. PROVIDE AN ADDRESSABLE MONITOR MODULE TO SUPERVISE TROUBLE CONTACTS OF REMOTE POWER SUPPLY. INSTALL BATTERIES TO PROVIDE SECONDARY POWER SUPPLY FOR 24 HOURS IN STANDBY AND 5 MINUTES IN ALARM. LAYOUT OF NAC CIRCUITS SHALL LIMIT VOLTAGE DROP BETWEEN POWER SUPPLY AND MOST REMOTE APPLIANCE TO LESS THAN 20%. PROVIDE MODULE AS REQUIRED TO SYNCHRONIZE STROBE FLASHES OF ALL NOTIFICATION APPLIANCES WITHIN A SINGLE FIELD OF VIEW.
6. FURNISH AND INSTALL SMOKE DETECTORS AT EACH ELEVATOR LOBBY AND IN THE ELEVATOR EQUIPMENT ROOM TO PROVIDE ELEVATOR RECALL FUNCTIONS IN ACCORDANCE WITH NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAYS TO INTERFACE WITH ELEVATOR CONTROLS AND PROGRAM RECALL FUNCTIONS AS FOLLOWS:
1. OPERATION OF SMOKE DETECTOR 2ND FLOOR LOBBY AND ELEVATOR EQUIPMENT ROOM - ELEVATOR RECALL TO 1ST FLOOR.
2. OPERATION OF SMOKE DETECTOR 1ST FLOOR LOBBY - ELEVATOR RECALL TO 2ND FLOOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
7. FURNISH AND INSTALL HEAT DETECTORS ADJACENT TO FIRE SPRINKLERS IN ELEVATOR PIT AND ELEVATOR MACHINE ROOM. HEAT DETECTORS SHALL CONFORM TO NFPA 72 AND ASME A17.1. PROVIDE ADDRESSABLE RELAY AND SHUNT TRIP BREAKER TO DISCONNECT POWER TO ELEVATOR EQUIPMENT UPON OPERATION OF EITHER HEAT DETECTOR. CONTRACTOR SHALL INCLUDE COST OF COORDINATION EFFORT (SERVICE CALLS) WITH ELEVATOR SERVICE CONTRACTOR IN BID.
8. FURNISH AND INSTALL ADDRESSABLE RELAY TO PROVIDE ACTUATION OF FIRE/SMOKE DAMPERS. RELAY SHALL BE NORMALLY ENERGIZED AND RATED FOR VOLTAGE AND CURRENT REQUIRED FOR DAMPER ACTUATION.

FIRE ALARM EQUIPMENT LEGEND

DEVICE	DESCRIPTION	MOUNTING	REMARKS
FACP	FIRE ALARM CONTROL PANEL	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	SILENT KNIGHT MODEL 5820XL OR FIRE-LITE MODEL MS-9600 WITH DACT-UD.
ANN	FIRE ALARM ANNUNCIATOR PANEL	WALL MOUNT ON RECESSED J-BOX AT 54" AFF.	KEY PAD WITH ALPHA-NUMERIC (MINIMUM 80 CHARACTERS) WITH INPUT KEYS TO ALLOW SYSTEM RESET AND ALARM SILENCE.
NAC-PS	REMOTE POWER SUPPLIES FOR NOTIFICATION APPLIANCE CIRCUITS	SURFACE MOUNT ON WALL WITH CENTER OF PANEL AT 54" AFF.	TO POWER NOTIFICATION APPLIANCE CIRCUITS. CONTROLLED BY ADDRESSABLE RELAY ON SIGNALING LINE CIRCUIT.
⊗	ADDRESSABLE SMOKE DETECTOR	CEILING MOUNT ON RECESSED J-BOX	INSTALL ON CEILING IN ALL CORRIDORS, LOBBIES AND ABOVE FIRE ALARM CONTROL EQUIPMENT AS INDICATED ON PLANS.
⊕	ADDRESSABLE HEAT DETECTOR	SURFACE MOUNT ON J-BOX WITHIN 24" OF FIRE SPRINKLER	TO PROVIDE POWER DISCONNECT TO ELEVATOR PRIOR TO OPERATION OF ADJACENT SPRINKLER.
□	ADDRESSABLE PULL STATION	WALL MOUNT AT 48" AFF ON RECESSED J-BOX. CONDUIT SHALL BE CONCEALED IN WALL.	INSTALL AT EACH EXIT DOOR AS INDICATED ON PLANS.
⊞	ADDRESSABLE MONITOR MODULE	MOUNT ON 4-SQUARE J-BOX NEAR CONVENTIONAL DEVICE TO BE MONITORED.	TO FACILITATE MONITORING OF CONTACTS OF CONVENTIONAL INITIATING DEVICES AS AN ADDRESSABLE POINT.
⊞	ADDRESSABLE CONTROL MODULE	MOUNT ON 4-SQUARE J-BOX WITHIN 3' OF DEVICE OR CIRCUIT CONTROLLED.	FOR PROTECTED PREMISE FIRE SAFETY FUNCTIONS (ELEVATOR RECALL AND NAC ACTIVATION).
◇	WATER FLOW SWITCH	FIRE SPRINKLER RISER	TO DETECT WATER FLOW IN FIRE SPRINKLER SYSTEM.
◇	VALVE SUPERVISORY SWITCH	FIRE SPRINKLER CONTROL VALVES	TO MONITOR POSITION OF CONTROL VALVES.
⊗	FIRE ALARM STROBE	WALL MOUNT AT 80" AFF OR CEILING MOUNT ON RECESSED J-BOX	STROBE SHALL HAVE A MINIMUM CANDELA RATING OF 1500 INTENSITY SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW.
⊗	FIRE ALARM HORN/STROBE (WALL)	WALL MOUNT AT 80" AFF ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⊗	FIRE ALARM HORN/STROBE (CEILING)	CEILING MOUNTED ON RECESSED J-BOX	CANDELA RATING FOR STROBE AS INDICATED ON DRAWINGS. SYNCHRONIZE WITH ALL OTHER STROBES IN VIEW. SET HORN VOLUME TO MAXIMUM LEVEL.
⊞	EXTERIOR FIRE ALARM HORN	WALL MOUNT AT 10'-0" AFF ON WEATHER PROOF BACK BOX	EXTERIOR ALARM. SET HORN VOLUME TO MAXIMUM LEVEL.
▷	FIRE/SMOKE DAMPER	EXISTING	PROVIDE ADDRESSABLE MODULE FOR CONTROL.

DRAWING DATE:
06/13/06

REVISION DATE:

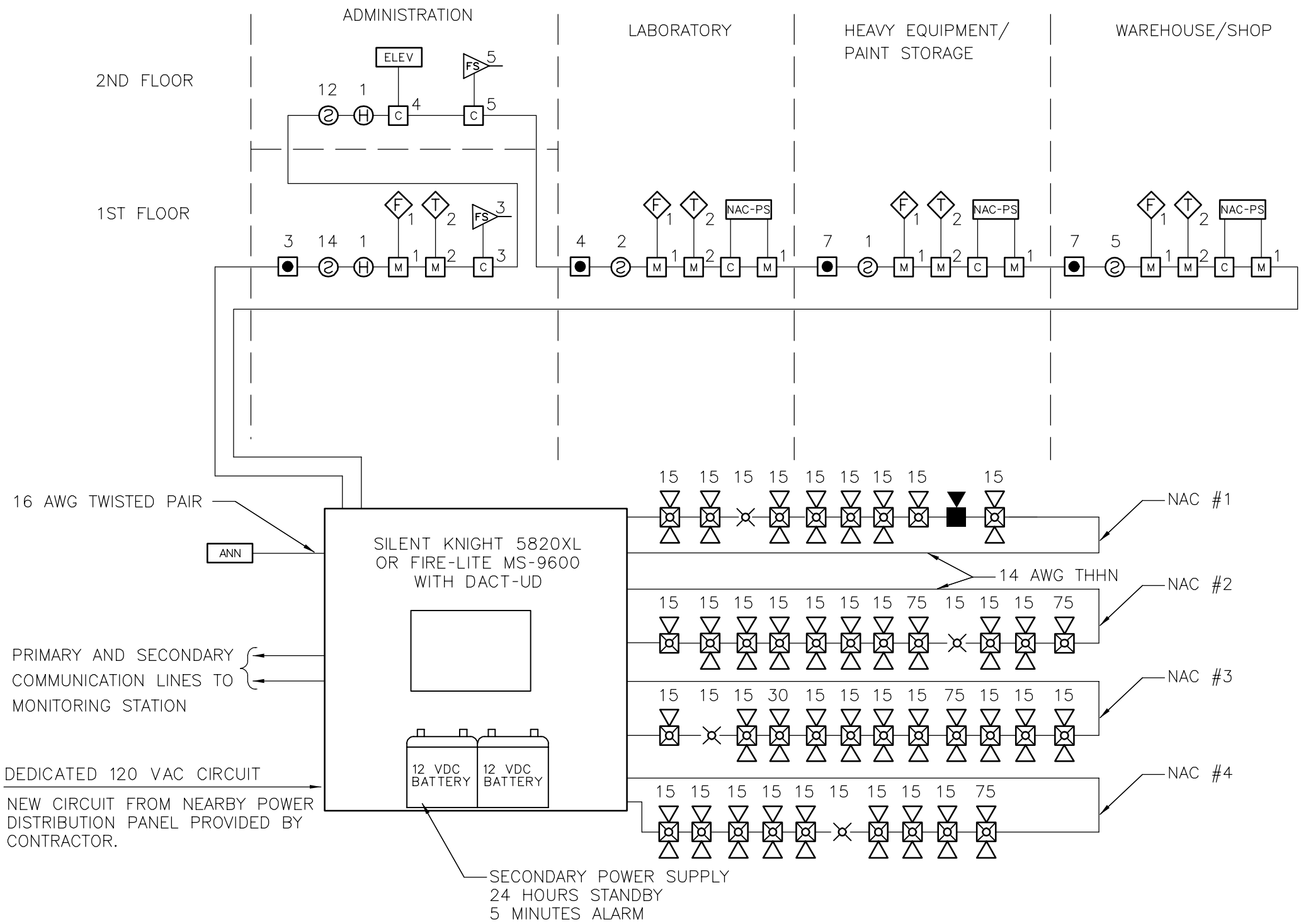
UDOT REGION 3
PROVO, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #05239900

FIRE ALARM SYSTEM
DETAILS
FP-3.6

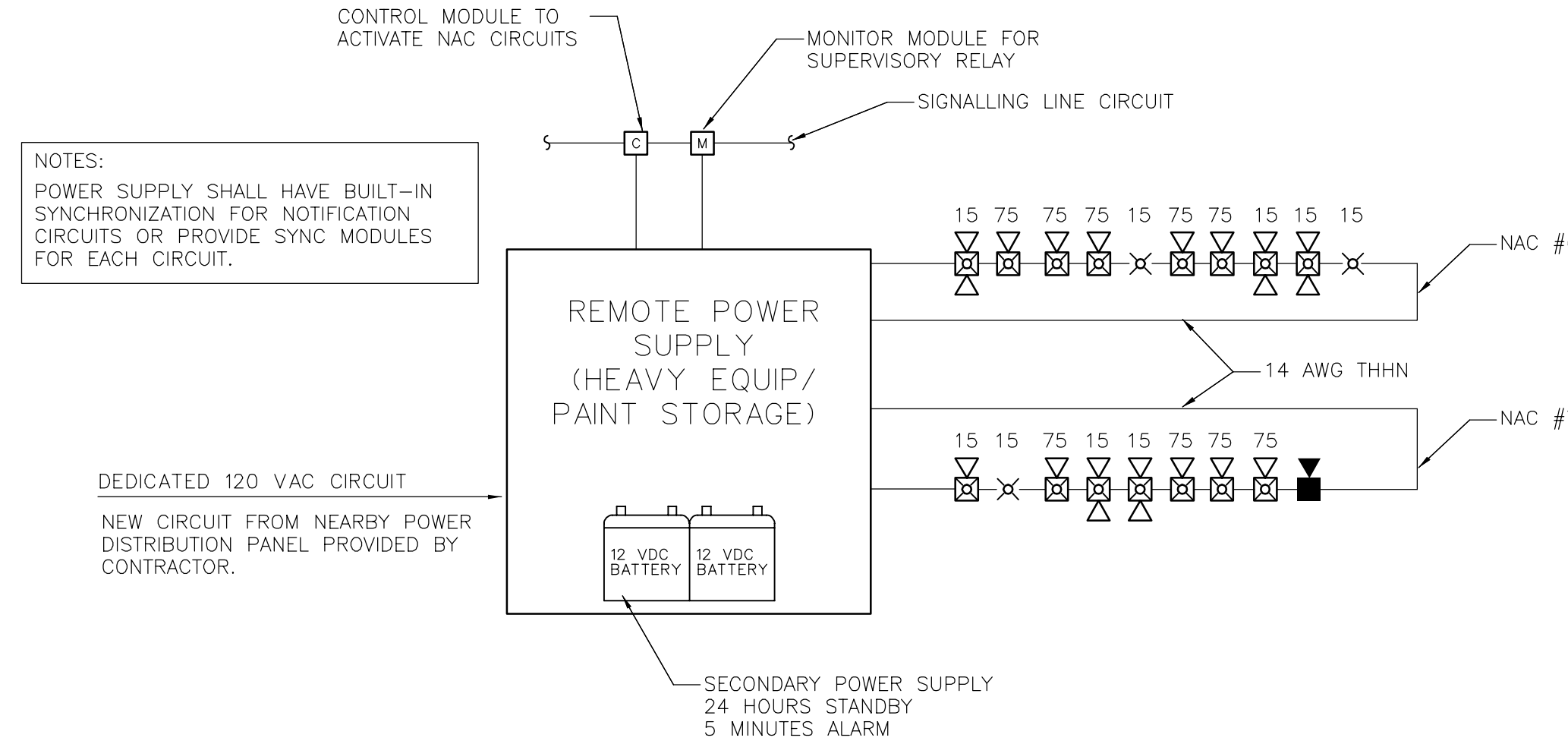
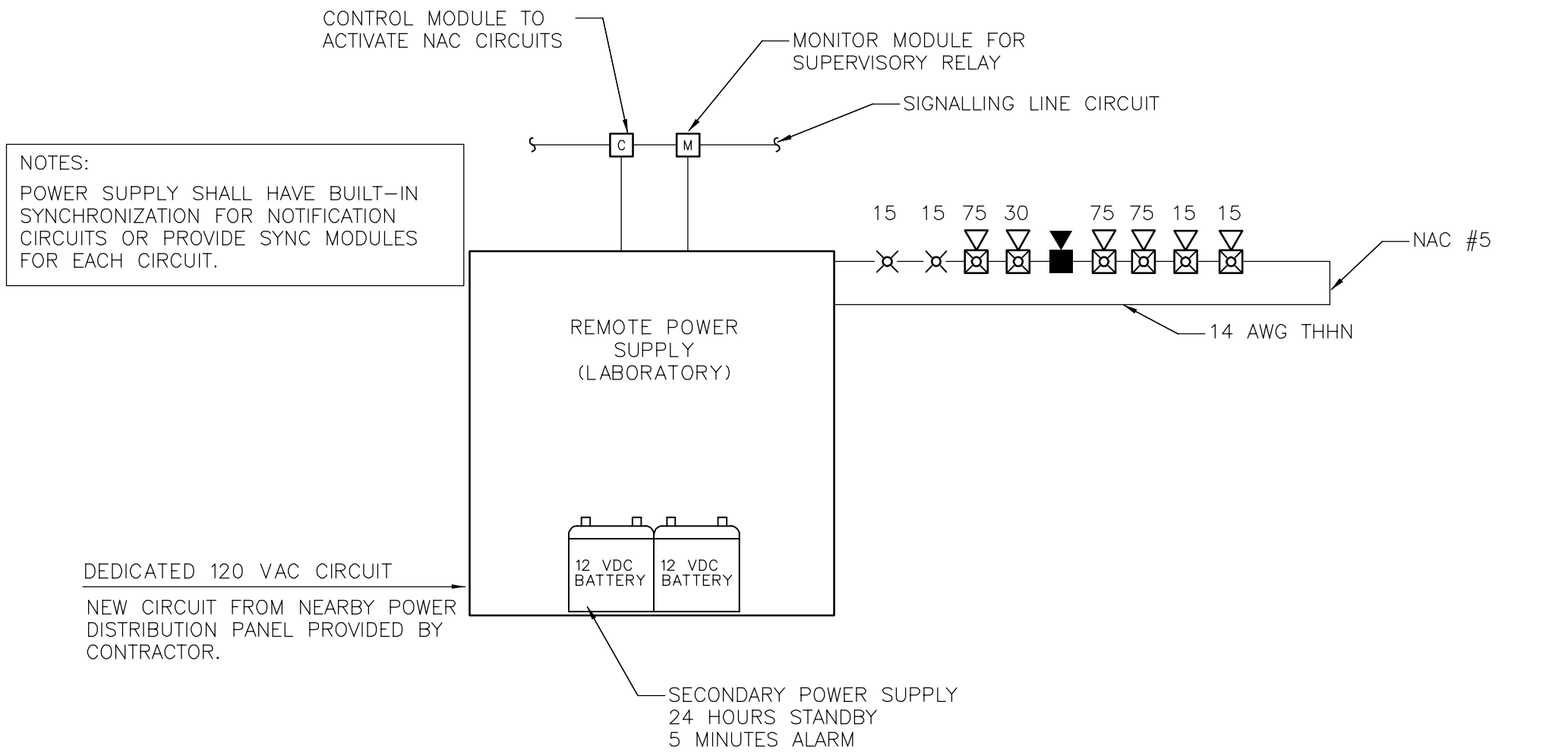
1 FIRE ALARM SINGLE LINE RISER DIAGRAM

N.T.S.



2 REMOTE NAC POWER SUPPLY – LABORATORY

N.T.S.



3 REMOTE NAC POWER SUPPLY – HEAVY EQ/PAINT STG

N.T.S.

4 REMOTE NAC POWER SUPPLY – WAREHOUSE/SHOP

N.T.S.

